The Citrus Industry

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Representative of every Interest
Representing no special Interest

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Science Conquers
Orange Juice Preservation

By Frank Kay Anderson

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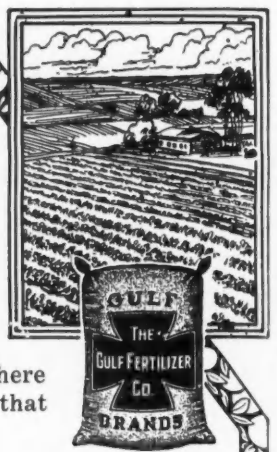

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Members of the Presidents Association of the Florida Citrus Exchange at their meeting in Davenport, December 16, grouped on the lawn of the Holly Hill Club Hotel, just before their luncheon and business session, when they were guests of Lorenzo A. Wilson, (shown on the extreme right) featuring Commander Day. Mr. Commander is second from the left, kneeling. Practically every section of the state and over 5,000 growers are represented in this group picture.

—Courtesy of The Davenport Times.

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The Citrus Industry

Aren't Operators Human?

Certainly. And we agree with you.

Florida's citrus operators, at least most of them, we all admit are plenty human. Full of human good qualities, shortcomings, mistakes, all mixed with no small amount of native shrewdness.

The laws of human nature govern their actions just about the same as they govern yours, or ours.

What of it?

Consider this. Here is a successful operator. You know he is good because he has made plenty of money for himself buying fruit and selling it at a profit, or from profits on his packing house operations, or from sales commissions. He drives a good car, has a fine home—neither he nor his want for much.

He is probably a grower, too. He comes to you and wants to handle your grapefruit, for instance. He can't afford to buy it—the market doesn't justify it. But he will give you "preferred" sales service at so much per box and will pack it as such and such a figure.

Fine! you say. And you make a deal.

He picks your fruit. Some of his own is in the house at the same time. He shoots out a few wires and lines up a few f. o. b. orders. Some are good others not so good.

Which fruit does he use to fill those desirable orders? Yours? Or his?

He does just as you, or I, or any other shrewd human would do. He fills those better orders with his own fruit. It's just human nature. He's naturally going to give preference to his own fruit, or that which he bought outright.

Wouldn't you?

That's just one of the reasons why the growers' own organization, the Florida Citrus Exchange, is season after season, the one safest bet for you as a grower. The pooling arrangements safeguard you against just such evidences of human nature as well as against unusual market risks run by any individual car.

Beyond that, however, you get the benefit of all operations at cost, and that cost is considerably under that which he charges you. Whether it's picking, packing or selling, you pay no profits to anybody but yourself. Yet you benefit by a superior service, national merchandising and advertising.

Sure they're human. But why let that keep money out of **your** pocket?

FLORIDA CITRUS EXCHANGE

Tampa, Florida

The Citrus Industry
EXCLUSIVE SPECIALIZED CITRUS PUBLICATION
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Vol. 13 TAMPA, FLORIDA, JANUARY, 1932 No. 1

Science Conquers Orange Juice Preservation

Long Search For Method to Preserve Orange Juice Without Loss of Flavor or Bouquet Successfully Ended

By Frank Kay Anderson

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Recently walking down an Orlando street with Crawford Bickford, secretary of the Orange County chamber of commerce, we asked the usual question of what did he know that was new.

"Well, they've solved the problem of preserving orange juice."

"What—t?" There ran through our mind the practically continuous effort of the past twenty years directed toward that end, an effort which has engaged many of the best scientific minds in this country and abroad as well as a lot of pseudo-scientists, plain orange growers, truck drivers, fakirs and what have you. And here was a matter of fact announcement that the job had been done.

Well, Mr. Crawford Bickford found himself undergoing an immediate and searching cross-examination which in earnestness and forcibility made up for anything it might lack in planning. When at last he was allowed to move away from the brick wall against which he had been pinned for convenience during the cross-examination he had spilled about all he really knew. It wasn't much. Mr. So-and-so had heard it from Mr. Thus-and-so, who had gotten it from Mr. Whosis, who in turn had gotten it direct from a man with whom he had traveled for a day on a train from somewhere to some place. It wasn't much; but circumstantially it was valuable, for there were certain things which had been said which tied right into some of the earlier research and couldn't have been thought up by anyone outside big-time scientific circles.

It seemed well worth following up; and the results of that follow-up are here set down for the edification of readers after some three weeks upon the trail of the story of an accomplishment which well enough may bring about great changes in the citrus industry.

Despite the modesty of some concerned, and the reluctance of true scientists to make forthright statements, it seems safe to say:

1. Orange juice now can be preserved in its original form without being heat-treated or Pasteurized.

2. Nothing is added, and nothing is taken away.

3. All the original flavor and bouquet is preserved.

4. No vacuum nor gas is employed, nor is freezing.

5. Witchcraft doesn't enter in.

6. The process, to us, promises to be relatively inexpensive, and practically foolproof.

7. It is fully patented, and the patents now are owned by one of the big corporations of the country, one which to our knowledge heretofore has had no connection with, nor interest in, any citrus producing section.

Not that we haven't been having preserved orange juice for the past few years; but in all fairness it must be admitted that the original flavor and bouquet of the juice have been somewhat frazzled out on the selvedge edge by the time the product got into the hands of consumers. In places where fresh fruit has been unobtainable, and in places where there has been the admixture of liberal quantities of gin or 'shine before taking, this preserved orange juice has gotten by, or rather gotten down. But at best its resemblance to fresh orange juice has been a bit remote.

Frozen orange juice did preserve its flavor, if expertly handled at the consuming end; but the public apparently has indicated that frozen orange juice is just a bit too complex for the average American intellect to grapple with successfully. What with foreign relations, the economics of the depression, and contract bridge Americans have enough to worry about, it is evident, without taking on any additional worries incident to

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IMPRESSIONS

By the Impressionist

The Florida Citrus Machinery Co., recently completed a new packing house installation at Rehoboth Palestine. Previous successful packing machinery installations in Palestine all have been by the same Skinner group. The Jaffa orange, which Palestine grows exclusively, presents some difficulties to the mechanical sizer; and the Dunedin engineers at last have developed a sizer which handles that oval-shaped orange satisfactorily.

Recent action by Canadian authorities in admitting duty free oranges and tangerines from Japan, while charging heavy duty on all orange imports from or through the United States, plainly indicates an intention to slap back at the high tariff duties Uncle Sam is imposing on imports from Canada.

Here are a few words of wisdom from Seymour Neumann's column, an always interesting feature of the New York Produce News: "Fresh fruits and vegetables are after all grown and not manufactured or moulded and a shipper cannot deliver any goods different from what the crop affords. These facts are as readily available to the buying trade as they are to the shipper." Yet half the trouble in marketing fresh farm products is due to the insistance of buyers upon impossible specifications. You can take some people out of the cities, but you cannot take the city out of some people. Like the instance of the chap looking to purchase a "buttermilk cow."

M. C. Britt, long prominent figure among vegetable growers in the Winter Garden section, now is operating his own specially built refrigerated trucks from Orange county direct to New York and Washington. He says it is an experiment; but he believes it promises much.

"Grapefruit McIntyre," so named in honor of O. O. McIntyre the New York coloumnist, consists of half a grapefruit with the center hollowed out and containing a thimble-full of Worcestershire sauce. It wuld take some odd genius like Odd McIntyre to think that up; but let's hope the sponsering New York cafes can make it an international furore. It can aid so in speeding up Worcestershire sauce sales.

Chap writes nominating R. B. Woolfolk as a member of the Grandpa Club, to take place with Bill Mouser and Lawrence Gentile. His information is incomplete. Robert B. Woolfolk was one of the charter members of the club. This newest grandchild is his third.

The gratitude of Florida citrus growers to newspaper contributors and editors, for some of the sage (?) advice so freely given at times concerning how to make citrus growing an unfailing source of large profit to everyone, finds a parallel up in Brems, Indiana, where one signing himself "A Grateful Farmer" took his pen in hand recently and indited the following letter to one of the large Chicago newspapers. This is what he wrote:

"Having been for many years a farmer, I have drunk at the fount of agricultural profundity as gushing forth from time to time in your editorial columns, and only at times have I questioned the wisdom thereof, but so convincing was your editorial of Thanksgiving morning entitled "Butchering Times" I am moved to express my enthusiastic thanks for the solution of a problem that has greatly concerned me. You state that if the farmer "cannot make money on his hogs he can eat them." Following your wise suggestions I have raised live stock to consume surplus grain and now have over three hundred hogs. I have been pertubed at the rapid fall in their market price, but your porcine philosophy has dispelled dark clouds of anxiety.

One hog would last my family of five for four months. The above drove of three hundred would be good for one hundred years. My posterity is therefore relieved from the anxiety of providing itself with meat. I agree with you "no farmer with hogs ready for market need worry about a meat supply for himself and his family."

Your swine sage has announced a principal application to all farm surpluses. I have, for example, thirty-seven hundred bushels of oats left on my hands through my own neglect to sell as soon as threshed, which I should have sold according to the instructions contained in your editorial of Oct. 30 entitled, "The Farmer as Speculator." These oats converted into oatmeal would furnish breakfast food for my posterity for several generations. And so on. The grower of surplus tobacco may smoke it, the producers of cotton and wool may wear their surplus crops, the grower of too much corn may eat more corn meal mush. We may now expect to see the price of agricultural products soar to unprecedented heights following this pronouncement of a new philosophy."

A Florida avaitor's impression of his recent crack-up on a North Caroline mountainside in a fog: "Well, the first thing I saw, and the last thing I remember, was a cow alongside me; and I was wondering how she got up there—."

The question whether it is C. W. (Joe) Lyons or (Joe) C. W. Lyons is still open. The Tampa Times, in its issue of December 26, prints the paricular immortal's photo in the midst of those of ten beautiful young ladies of Tampa under the heading of "Society." The Times calls him (Joe) C. W. Lyons. That leaves us all confused; but at any rate we are sure that not since the days of the late lamented Abdul Hamid has any mere man come in for such publicity.

Note to our Porto Rican readers, Bob Sims in particular: O. G. Strauss, head of the federal fruit inspection service here shortly will be Porto Rico bound for a look-see about the island. He is a good guy, and we here in Florida have come to appreciate him muchly. We commend him to you; and are confident he will brighten up your island during the brief period of his stay.

Florida man writes in asking: "Can you put your finger upon any one thing which accounts for the pre-

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Significance of the Canadian Tariff on Oranges

(Concluded from last month)

Effects of Canadian Tariff on American Orange Industry

The first effect of the tariff on oranges should be to increase the price Canadian consumers must pay for American oranges by approximately the amount of the duty. If not, part of the duty on oranges imported from this country must be borne by American producers. If the price is increased by 75 cents per box the total amount of oranges consumed is not only likely to decrease somewhat but the higher price is certain to encourage some imports from untaxed Empire sources. Consequently it appears probable that the United States orange industry must either bear a part of the incidence of the Canadian duty or ship fewer oranges to Canada, or both. In any event it appears that United States producers must bear some loss. Since the Canadian market has offered an outlet for a practically constant 7 per cent of the United States commercial orange crop, any diminution of this amount must result in a larger amount of oranges to be disposed of on the domestic market or in foreign markets other than Canada.

Competition from British Empire Sources

There are, moreover, distinct possibilities of diversion of a considerable portion of the Canadian import trade in oranges to British Empire countries. For the present the only orange growing countries within the Empire which receive the benefit of the preference (i. e. free duty) are South Africa, Australia and Jamaica. The competition from South Africa and Australia would be felt from May to November when the California Valencia crop is being marketed since both these countries are in the Southern Hemisphere. Jamaican oranges would be available practically the year around but the heaviest movement would be from the last of September to January. These would compete mainly with the late California Valencia crop and the early winter oranges .(a)

South African (including the Union, and Southern Rhodesia) has been producing and exporting oranges on a considerable and increasing scale in recent years. In the four-year period 1927-1930 her exports averaged 1,160,000 boxes. In 1930 exports were 1,900,000 boxes and in 1931 they are expected to be 1,700,000 boxes. Nearly all of the exports have gone to the United Kingdom. Up to the present time a number of factors have combined to prevent shipments in quantity to the Canadian market: The propinquity of the vast American supply and the freedom of access to the Canadian market which it has enjoyed; the cost of shipment from distant sources, together with the lack of transportation facilities; the high quality of the American product; the European demand for oranges during the period when South African oranges are being marketed; and the fact that about one-third of the South African crop consists of Navels which, as grown in South Africa, have not always proved well adapted for shipment to distant markets.

It is quite possible, however, that a preference of as much as 75 cents a box may offset some of these factors sufficiently to encourage a considerable growth of imports into Canada from South Africa. The present refrigerated shipping rate of about 79 cents per box from London to Halifax or Montreal is not much greater than the preference granted in the tariff, and, since South African oranges are mostly marketed in the United Kingdom anyway, this preference is almost enough to cover the additional cost of transportation. The recent inauguration of a direct steamer service between South Africa and Canada may result in considerably lower rates and the fruit arriving in better condition. The development of a trade in oranges between South Africa and Canada would result in competition with California Valencias from May to November since South African Navels are marketed from May to September, Seedlings from June 15 to September, and Valencias from August to November. The distribution of South African oranges has been gradually worked out to secure as wide a spread as possible. The peak of the Navel season is usually reached between the middle of June and the end of July. This is followed by Seedlings which are shipped in greatest quantity from the middle of July to the middle of August. Lastly, come the Valencias which reach their peak in September.

Australia likewise offers possibilities of new competition. Australian production has averaged over 2,000,000 boxes in recent years and, it is estimated, will reach 2,900,000 boxes by 1936. Australian already has a very high per capita consumption of oranges and, with the increasing production, strong attempts are being made to open up export markets. Several small shipments have been sent from Australia to Vancouver, British Columbia, this season. At present the cost of shipping oranges from Sydney to Vancouver under refrigeration is $1.40 per box and fair shipping facilities are available which could easily be increased if the trade warrented it. Australia produces Valencias, Navels, Mandarins and Seedling oranges. The packing and grading is also generally satisfactory. As in the case of South Africa, Australian oranges would compete principally with California Valencias.

At the present time Jamaica is not an important exporter of oranges but the total orange production is estimated at from 500,000 to 750,000 boxes annually, according to Consul Paul C. Squire at Jamaica. The bulk of these is either consumed at home or converted to orange oil. Orange oil has steadily become less profitable in recent years so it is not unlikely that the export of fresh oranges will increase. In the fiscal years 1900-01 to 1901-02, before the American orange industry had developed to its present important proportions, Jamaica shipped 484,000 and 451,000 boxes of oranges, respectively, to the United States. These quantities were estimated at about half the production. In 1919, according to Consul Charles L. Latham, Jamaica shipped a total of 104,000 boxes, 6,600 of which went to the United States, 8,600 to Canada and most of the balance to the United Kingdom. Due

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(a) Other countries in the British Empire which produce oranges for export are Palestine and Cyprus. The former country is an important producer of high quality winter oranges. Exports of oranges from Palestine in the last five years have averaged about 2,200,000 boxes a year. Exports from Palestine are increasing. At the present time Palestine oranges are not given the benefit of free entry into Canada.

Bulletins and Circulars of Citrus Fruits

Issued by The United States Department of Agriculture to the end of the fiscal year 1930-1931.

The list of publications here presented includes only bulletins and circulars of the various pamphlet series issued by the Department and printed by the Government Printing Office. It is based on published lists of Department publications and has not been checked against the originals, except in a few instances.

The series consulted and the abbreviations used are as follows:

Farmers Bulletins — FB
Department Bulletins — DB
Technical Bulletins — Tech B
Department Circulars — DC
Circulars — Circ
Miscellaneous Circulars — MC
Miscellaneous Publications — MP

In addition, there are included a number of older publications, mostly out of print, that were issued by bureaus or divisions in series now obsolete.

No attempt has been made to compile a list of journal articles published by Department workers in scientific, technical, and trade journals of this and other countries, or in the Journal of Agricultural Research of the Department. A large amount of material not listed here, including statistical data*, has been published in the Annual Reports of the Secretary and of various Bureau chiefs, and in the Yearbook of the Department.

Publications are listed under the following headings:

1. Culture
2. Breeding
3. Diseases
4. Insect Pests
5. Marketing
6. Products & By-products
7. Analyses
8. Regulation

Unstarred publications may be obtained free from the Division of Publications of the Department so long as there is a supply available for free distribution. Articles marked with one star (*) are for sale only by the Superintendent of Documents, Government Printing Office at the price indicated. Remittance should be made by coupons, postal order, or check. Currency may be sent at sender's risk. Foreign remittances should be made either by international money order or draft on an American bank. Articles marked with two stars (**) are out of print, but are available for consultation in the Department library, the libraries of the various State Experiment Stations, and in many technical, university, and city libraries throughout the country that have been designated as depositories for U. S. Government publications.

*Current statistics on crops and markets are issued by the Bureau of Agricultural Economics in mimeograph form (See exhibit). Annual statistics on production, shipments, and prices have been issued each year since 1906 in the statistical section of the Department Yearbook.

Culture

**Pomol. Div. Bul. 1.—Report on condition of tropical and semi-tropical fruits in the United States in 1887.

**Pomol. Div. Bul. 4.—Relative merit of various stocks for orange, with notes on mal di goma and mutual influence of stock and scion. 1891.

**Porto Rico Bul. 4.—Propagation and marketing of oranges in Porto Rico. 1904.

**FB 238.—Citrus growing in the Gulf States. 1905.

**Hawaii Bul. 9.—Citrus fruits in Hawaii. 1905.

**Bur. Pl. Ind. Circ. 46.—The limitation of the Satsuma orange to trifoliate-orange stock. 1909.

**FB 539.—Propagation of citrus trees in the Gulf States. 1913.

**FB 542.—Culture, fertilization and frost protection of citrus groves in the Gulf States. 1913.

**Porto Rico Bul. 18.—Citrus fertilization experiments in Porto Rico. 1915.

**DB 445.—The navel orange of Bahia, with notes on some little known Brazilian fruits. 1917.

**DB 499.—The mulched basin system of irrigated citrus culture and its bearing on the control of mottle-leaf. 1917.

**Bur. Pl. Ind., Off. Hort. and Pomol. Inv., Circ. 1.—Varieties of the Satsuma orange group in the United States. 1918.

**Bur. Pl. Ind., Crop Physiol. and Breed. Inv., Circ. 4.—Tangelos: What they are. The value in Florida of the Sampson and Thornton tangelos. 1918.

**Bur. Pl. Ind., Crop Physiol. & Breed. Inv., Circ. 5.—Varieties of the Satsuma orange group in Japan. 1918.

**FB 1122.—Citrus-fruit growing in the Gulf States. 1920. (See FB 1343).

**DB 821.—Frost protection in lemon orchards. 1920.

FB 1333.—Pruning citrus trees in the Southwest. 1923. 5c.

FB 1343.—Culture of citrus fruits in the Gulf States. 1923. 10c.

**Hawaii Bul. 49.—The acid lime fruit in Hawaii. 1923.

*DC 310.—The solar propagating frame for rooting citrus and other subtropical plants. 1924. 5c.

FB 1337.—Citrus fruit growing in the Southwest. 1925. 10c.

Breeding

**Bur. Pl. Ind., Documents, 332 to 336, and 434 to 437.—Citranges. 1907 and 1909.

**Bur. Pl. Ind., Circ. 77.—A study of the improvement of citrus fruits through bud selection. 1911.

FB 794.—Citrus fruit improvement: How to secure and use tree performance records. 1917. 5c.

*DB 623.—Citrus fruit improvement: A study of bud variation in the Washington navel orange. 1918. 15c.

**DB 624.—Citrus fruit improvement: A study of bud variation in the Valencia orange. 1918.

**DB 697.—Citrus fruit improvement: A study of bud variation in the Marsh grapefruit. 1918.

**DB 813.—Citrus fruit improvement: A study of bud variation in the Lisbon lemon. 1920.

DC 206.—New feature of bud variation in citrus. 1922. 5c.

DB 1255.—Inheritance of composition in fruit through vegetative propagation. Bud variants of Eureka and Lisbon lemons. 1924. 5c.

DB 1483.—Bud selection in Valencia orange, progeny tests of limb variations. 1929. 20c.

Tech B 123.—Bud selection in Washington Navel orange, progeny tests of limb variations. 1929. 20c.

Tech B 163.—Inheritance of composition of Washington Navel oranges of various strains propagated as bud variants. 1930. 5c.

Diseases

**Veg. Physiol. and Path. iv. Circ. 15. — Treatment for sooty mold of orange. 1895.

**Veg. Physiol. and Path. Div. Bul. 8. — Principal diseases of citrus fruits in Florida. 1896.

**Div. Veg. Physiol. and Path. Bul. 13.—Sooty mold of the orange and its treatment. 1897.

**Bur. Pl. Ind. Bul. 123.—The decay of oranges while in transit from California. 1908.

**Bur. Pl. Ind. Circ. 19.—The decay of Florida oranges while in transit and on the market. 1908.

**Bur. Pl. Ind. Circ. 26.—Some factors affecting the keeping qualities of American lemons. 1909.

**Bur. Pl. Ind. Circ. 247.—A knot on citrus trees caused by Sphaeropsis tumefaciens. 1912.

**Bur. Pl. Ind. Circ. 124.—Miscellaneous Papers. C. Experiments on the decay of Florida oranges. 1913.

*DB 924.—Tear stain of citrus fruits. 1921. 5c.

*DC 215.—Commercial control of citrus scab. 1922. 5c.

DB 1118.—Citrus scab, its cause and control. 1923. 25c.

DC 259.—Commercial control of citrus melanose. 1923. 5c.

DC 293.—Commercial control of citrus stem end rot. 1923. 5c.

6DB 1474.—Citrus melanose and its control. 1927. 20c.

*DC 409.—Effect of spraying with fungicides on keeping quality of Florida citrus fruits. 1927. 5c.

Insect Pests

**Ent. Div. Bul. 1 (Old series).—Reports of experiments, chiefly with kerosene, upon insects injuriously affecting orange tree and cotton plant. 1883.

**Ent. Div. Bul. 4 (Old series).—Reports of observations and experiments in practical work of the Division. (Includes two papers on orange insects). 1884.

**Ent. Div., Gen'l Pub.—Report on insects affecting the orange and other plants of the citrus family, with practical suggestions for their control or extermination. 227 pages. 1885.

**Ent. Div. Bul. 15.—The scale insects of the orange in California, and particularly the Icerya or fluted scale. 1887.

**Ent. Div. Bul. 20 (Old series).—Root-knot diseases of peach, orange, and other plants in Florida, due to the work of anguillula. 1889.

**Ent. Div. Bul. 21.—Report of trip to Australia to investigate natural enemies of fluted scale. 1890.

**Ent. Div. Bul. 31 (New series).—Review of the white fly investigation with incidental problems. 1902.

**FB 172.—Scale insects and mites on citrus trees. 1903.

**Bur. Pl. Ind. Bul. 52.—Wither-tip and other diseases of citrus trees and fruits by Colletotrichum gloeosporioides. 1904.

**Porto Rico. Exp. Sta. Circ. 4.—Control of the brown ant in orange orchards. 1904.

**Ent. Bul., Tech. Ser. 12.—Miscellaneous papers V. The more important Aleyrodidae infesting economic plants, with description of a new species infesting the orange. 1907. VII. The orange thrips. 1909.

**Ent. Bul. 76.—Fumigation for the citrus white fly, as adapted to Florida conditions. 1908.

**Ent. Circ. 111.—Preparations for winter fumigation for the citrus white fly. 1909.

**Ent. Bul. 64.—Some miscellaneous results of the work of the Bureau of Entomology. VIII. The woolly white fly: A new enemy of the Florida orange. 1910.

**Porto Rico Bul. 10.—Insects injurious to citrus fruits and methods for combating

them. 1911.
*Ent. Bul. 92.—White flies injurious to citrus in Florida. 1911. 5c.
Ent. Bul. 99.—Papers on insects injurious to citrus and other subtropical fruits.
*I. The orange thrips. 1911. 5c.
**II. The red-banded thrips. 1912.
**Ent. Bul. 90.—Hydrocyanic-acid gas fumigation in California. 1912.
*Ent. Bul. 102.—Natural control of white flies in Florida. 1912.
**Ent. Circ. 160.—The Mediterranean fruit fly. 1912.
**Ent. Circ. 168.—Spraying for white flies in Florida. 1913.
**Ent. Bul. 120.—Report of a trip to India and the Orient in search of the natural enemies of the citrus white fly. 1913.
**DB 134.—Citrus fruit insects in the Mediterranean countries. 1914.
**DB 161.—The Mediterranean fruit fly in Bermuda. 1914.
**DB 256.—Katydids injurious to oranges in California. 1915.
*FB 674.—Control of the citrus thrips in California. 1915. 5c.
**FB 862.—The common mealybug and its control in California. 1917. See FB 1309.
**DB 536.—The Mediterranean fruit fly in Hawaii. 1918.
**DB 616.—The citrus thrips. 1918.
**DB 640.—The Mediterranean fruit fly. 1918.
**DB 645.—Some reasons for spraying to control insect and mite enemies of citrus trees in Florida. 1918.
**DB 647.—The Argentine ant in relation to citrus groves. 1918.
**FB 923.—Fumigation of citrus trees. 1918. See FB 1321.
**FB 928.—Control of the Argentine ant in orange groves. 1918.
FB 933.—Spraying for control of insects and mites attacking citrus trees in Florida. 1918. 5c.
*FB 1011.—The wooly white fly in Florida citrus groves. 1919. 5c.
*DB 885.—The black fly of citrus and other subtropical plants. 1920. 20c.
**DB 907.—Fumigation of citrus plants with hydrocyanic acid; conditions influencing injury. 1920.
*DB 965.—Control of the Argentine ant in California citrus orchards. 1921. 10c.
*DB 1040.—Control of citrophilous mealybug. 1922. 5c.
*DB 1117.—Natural control of the citrus mealybug in Florida. 1922. 5c.
**DB 1178. — Bordeaux-oil emulsion. 1923.
*FB 1309.—Control of the common mealybug on citrus in California. 1923. 5c.
FB 1321.—Fumigation of citrus trees for guard introduction of citrus plants; System of aseptic plant propagation. 1923. 5c.
*DC 299.—Quarantine procedure to safe-control of insect pests. 1923. 10c.
**DB 1217—Mixing emulsified mineral lubricating oils with deep-well waters and lime-sulphur solutions. 1924.
*Tech B 15.—Citrus insects of Japan. 1927. 5c.
Tech B 176.—The citrus rust mite and its control. 1930. 15c.
Circ. 109.—Parasitism of the Mediterranean fruit fly in Hawaii, 1922-1924. 1930. 5c.
*Tech B 252.—Two citrus leaf miners of the Far East. 1931. 5c.

Marketing

**Porto Rico Circ. 8.—Picking and packing citrus fruits. 1909.
**Bur. Pl. Ind. Bul. 232.—A preliminary study of the forced curing of lemons as practiced in California. 1912.
**DB 63.—Factors governing the successful shipment of oranges from Florida. 1914.
**DB 225.—A system of accounting for cooperative fruit associations. 1915.
**DB 266.—Outlets and methods of sale for shippers of fruits and vegetables. 1915.
*DB 267.—Methods of wholesale distribution of fruits and vegetables on large markets. 1915.
**FB 696.—Handling and shipping citrus fruits in the Gulf States. 1915.
**DB 494.—A humidifier for lemon curing rooms. 1917.
**DB 1159.—Coloring Satsuma oranges in Alabama. 1923. 5c.
*DB 1237.—Organization and development of cooperative citrus-fruit marketing agencies. 1924. 5c.
DB 1261.—Operating methods and expense of cooperative citrus-fruit marketing agencies. 1924. 5c.
DB 1290.—Transportation of citrus fruit from Porto Rico. 1924. 5c.
*DB 1362.—American fruit and produce auctions. 1025. 5c.
DB 1367.—Coloring citrus fruit in Florida. 1926. 5c.
*DB 1368.—Cold storage of Florida grapefruit. 1926. 5c.
*DB 1435.—Economic aspects of citrus-fruit growing in Polk County, Florida. 1926. 10c.

Scene from 1931 Orange Festival Pageant

Center aisle view of Citrus Building 1931 Orange Festival at Winter Haven

FB 1579.—Containers used in shipping fruits and vegetables. 1929.

Products and By-Products

**Bur. Pl. Ind. Bul. 160.—Italian lemons and their by-products. 1909.
*DB 241.—Studies on fruit juices. 1915.
**DB 399.—The production of sweet-orange oil and a new machine for peeling citrus fruits. Possibility of the commercial production of sweet-orange oil from waste oranges. 1916.
*DB 1025.—Studies on the clarification of unfermented fruit juices. 1922. 5c.
DC 232.—By-products from citrus fruits. 1922. 5c.
DC 254.—Homemade apple and citrus pectin extracts and their use in jelly making. 1923. 5c.
*DB 1323.—Citrus pectin. 1925. 5c.
Circ. 13.—Curing and preserving citron. 1927. 5c.

Anaylses

**Chem. Bul. 87.—Chemical composition of some tropical fruits and their products. 1904.
*Off. Exp. Sta. Bul. 28.—The chemical composition of American food materials. 1906. 10c.
**Chem. Circ. 46.—The occurrence of pinene in lemon oil. 1909.
**DB 993.—The composition of California lemons. 1921.
Circ. 50.—Proximate composition of fresh fruits. 1928. 5c.
Circ. 84.—Vitamins in food materials. 1929. 15c.

Regulations

Food Insp. Decision 133.—The coloring of green citrus fruits. 1911.
Food Insp. Decision 143.—The labelling of candied citron. 1912.
Food Insp. Decision 150.—Frozen citrus fruit fly. 1913.
Notice of Quarantine No. 19. — Citrus canker. 1914.
Notice of Quarantine No. 28 (with regulations). 1917.
Food Insp. Decision 182.—Standards for citrus fruits. 1921.
Notice of Quarantine No. 56 (with regulations).—Fruit and vegetable quarantine. Mexican fruit fly. 1923.
S. R. A., B. A. E. No. 97.—Proposed cooperation between the U. S. D. A. and handlers of fresh fruits and vegetables. 1925.
MC 67—The warehouseman and the U. S. Warehouse Act. 1926. 5c.
Notice of Quarantine No. 64 (with regulations).—Quarantine on account of the Mexican fruit worm. 1927.
S. R. A., B. A. E. No. 104.—Rules and regulations of the Secretary of Agriculture under the U. S. Standard Container Act of August 31, 1916. 1927.
S. R. A., B. A. E. No. 93 rev.—Rules and regulations of the Secretary of Agriculture governing the inspection and certification of fruits, vegetables and other products. 1931.
S. R. A., B. A. E. No. 121.—Rules and regulations of the Secretary of Agriculture for carrying out the provisions of the perishable agricultural commodities act, 1930 (46 Stat. 531). 1930.
S. R. A., F. D. No. 2, rev. 2.—Definitions and standards for food products. 1931.
Notice of Quarantine No. 13 (as revised March 12, 1927)—Mediterranean fruit fly and melon fly. New revision effective 1930.
Notice of Quarantine No. 37, with revised regulations. Nursery stock, plant, and seed quarantine. 1930.
S. R. A. No. 105 (P. Q. C. A.) Reprint.—List of current quarantines and other restrictive orders and miscellaneous regulations. 1931.

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SEEKS TO CHECK BULK SHIPMENTS OF CITRUS

William L. Wilson of Panama City, chairman of the transportation and industrial committee of the Florida State Chamber of Commerce, has written Chairman Norman H. Vissering of the Committee of Fifty, tendering the aid of the State Chamber in opposing the bulk shipment of citrus fruits.

Mr. Wilson points out that bulk shipments of citrus fruits to central distributing points in the North, there to be graded, washed and packed, constitutes a menace to the packing houses of Florida, and that if the practice should become general it would not only put Florida packing houses, with millions of dollars invested, out of business, but would in the final analysis wreck all Florida marketing agencies, both independent and co-operative. He also believes that the continued growth of bulk shipments would prove disastrous to the growers, placing them at the mercy of bulk shippers and forcing them to accept whatever price might be offered.

That there is some basis for Mr. Wilson's alarm, and that this alarm is felt in other quarters, cannot be denied. If the growers themselves were to profit by expansion of bulk shipments, there probably would be little inclination on their part to worry over the troubles of the railroads or the marketing agencies, disastrous as the results to those industries would prove. However, there is little if any indication that the growers stand to profit by bulk shipments. On the contrary, there appears to be reason for the belief that prices under such a system would be worse rather than better than under the present system of distribution.

Nor is Florida alone in this apprehension as to the effects of bulk shipments. From Texas comes the same complaint that bulk shipments of grapefruit are threatening the standard of quality of Rio Grande fruit, and thereby depressing the price.

In the long run, it is quality fruit, attractively packed and labeled, that brings the highest price in any market.

LOWER FREIGHT RATES TO SOUTHEAST

The most important development of the past thirty days so far as Florida citrus interests are concerned was the granting by the Interstate Commerce Commission of the application of Florida railroads for a reduction of twenty-five per cent in the freight rates on citrus fruits from points in Florida to all points in the Southeastern states.

The new reduced rates, which under the mandate of the Interstate Commerce Commission, becomes effective on January 25, applies to points in Southeastern territory as far north as North Carolina and as far west as Alabama.

The reduced rates should have a material effect upon the shipment of bulk fruit by truck and otherwise to the territory affected and should correspondingly increase the shipment of boxed fruit to that territory.

Under the new rate, the minimum car load is fixed at 384 boxes, a figure which should prove attractive to shippers and distributors in Southeastern territory.

While granting the petition of the rail carriers for the reduction in Southeastern territory, the Commission denied the petition for a reduction of eighteen per cent in the rates to Eastern territory farther north. The roads had asked for permission to reduce rates to Eastern territory, increasing the minimum car load from 364 boxes to 444, but this petition was denied.

Just why the reduced rate to Southeastern territory should have been granted and the petition for a lesser reduction to Northeastern territory denied, is a mystery which neither the railroads nor the citrus growers and shippers have as yet been able to solve. With California enjoying preferential rates to Northeastern territory, and with Southern railroads seeking permission to at least partially equalize such rates, it is hardly understandable why the Commission should deny the petition for reduction to that territory.

In the matter of grove practices, experiments are a good thing—but be sure that they are treated as experiments until time has proven them worthy of acceptance. A grove property is too valuable for widespread experiments which may prove costly in the end. The wise policy is to test thoroughly on a small scale, and to be very sure you are right before applying the new practice to the grove as a whole.

Study your fertilization and spraying problems carefully, but remember always that a starved or diseased tree cannot produce good crops of good fruit.

If "misery loves company" the heart of the citrus grower should be overflowing with affection when he views the plight of the cotton planter and the wheat grower.

Florida Orange Festival

When the people of Florida and tourist visitors turn their steps toward the 4th annual Florida Orange Festival at Winter Haven during the 5 day period from January 26-30 they will be on their way to see an exposition which, while following the general plan of the previous festivals will be sufficiently enlarged and improved upon to put it distinctly in a class never before approached by a Florida agricultural exposition, which is just another way of saying that the Florida Orange Festival for 1932 will embody many new features and will reveal a number of interesting innovations that will carry out Manager J. B. Guthrie's ambition to make it a bigger and better affair than any heretofore held.

With five days of beautiful citrus exhibits, by-products and commercial displays, free entertainment of varied matter, one of the largest carnivals in the country, a colorful street parade, crowning of the queen pageant and Washington bicentennial program, the Florida Orange Festival will offer a series of events unequalled by any affair of its kind in the state or southeast. Add to these features more than half a hundred citrus exhibits by individual houses, comprehensive exhibits by the federal and state agricultural departments and, as a new feature, large booth displays by a half dozen of Florida's leading agricultural counties and you have a citrus event that is most instructive and entertaining. Especially so for the use of state visitors who know little about the citrus industry.

The 1932 Florida Orange Festival is the result of patient and persistent effort on the part of the loyal citrus growers, shippers and business men of citrus Florida. This will be the 4th annual Florida Orange Festival but it will be the 8th citrus exhibition to be held in Winter Haven, as the Florida Orange Festival, Inc., is the outgrowth of the Polk County Orange Festival which was first held in January 1924. The organization continued under this name up to and including 1928, being held each year except in 1926. In 1928 it was felt that the time had come for a reorganization and a widening of the scope of the festival which led to the adoption of the present name and the hiring of a full time manager in the person of J. B. Guthrie. Mr. Guthrie proved the right man for the place and succeeded in putting on the first Florida Orange Festival in January 1929, which drew an attendance of over 49,000 during the five days. Mr. Guthrie continued through 1929 to prepare for the next festival, which led to a bigger and more comprehensive display of citrus and by-products and commercial foods in the 1930 affair, rolling up an attendance of more than 61,000 in five days. The presence of former President Coolidge at this affair brought several thousand additional visitors who advertised it so effectively that when the 1931 festival was held, despite the depression, an attendance of 69,-339 was registered. The management is hoping to maintain this large increase and if possible, add to it in the 1932 event.

Briefly stated the program for the 1932 festival calls for School Day on Tuesday, January 26, the school children of Polk county being granted a full holiday and being admitted free to the festival. A Washington Bicentennial Pageant will be featured. The second day, Wednesday, January 27, will be Governor's Day, with the Hon. Doyle E. Carlton, Governor of Florida, as guest of honor. The float parade, the repeating of the Washington Bicentennial pageant and the ceremony of the crowning of the queen of the Orange Festival will take place on that day. The third day will be All States and Tourist Day with the program in charge of the Florida Tourist Club Federation. On Friday will be held all Florida Growers Day with the fifth annual assembly of citrus growers in Winter Haven. The fifth day will be American Legion Day and will prove the grand finale of the Festival.

The festival will again occupy large exhibition halls, four in number, which will be erected temporarily on third street northeast where it has been held the past three years. These buildings will be erected and ready for occupancy by January 15, giving the exhibitors plenty of time to place their displays. There will be separate quarters for state and federal exhibits.

While the great mass of details in the building of the festival is in the hands of Manager J. B. Guthrie, to whom much praise is due for the success of the exposition, no one is more ready than is Guthrie to acknowledge the cooperation of the Festival's Board of Directors and Executive Board, whose assistance has been of inestimatable value in insuring its past and future success. The Board of Directors of 25 members is headed by the executive committee of nine with John F. May, prominent local citrus grower, as president. Mr. May is a former president of the Winter Haven Chamber of Commerce. Judge Allen E. Walker, former local municipal judge, first president of the Florida Citrus Growers Clearing House Ass'n. and a prominent grower, is vice president. Jay Stull, manager of the Eloise Growers, Inc., citrus grower, former president of the Chamber of Commerce and new city commissioner of Winter Haven is the secretary. W. D. Gray, vice president and cashier of the American National Bank and former president of the Chamber of Comerce, has been the capable treasurer since the reorganization. The remaining members of the executive committee are: G. B. Aycrigg, K. E. Bragdon, Charles F. Lathers, W. M. Mabson, James Thompson. The Board of Directors are: H. W. Ambrose, George Andrews, G. B. Aycrigg, K. E. Bragdon, N. D. Cass, J. C. Chase, C. C. Commander, Jas. W. Foley, J. H. Fuller, W. D. Gray, Russell N. Haas, W. M. Hampton, Earl L. Haskins, Charles F. Lathers, C. W. Lyons, W. M. Mabson, John F. May, O. C. Owen, L. C. Sinclair, John A. Snively, Jay Stull, C. S. Taylor, Allen E. Walker, and R. B. Woolfolk.

NEW FERTILIZER CONCERN MAKES BOW AT ORLANDO

The Florida Fertilizer Corporation is the title of a new concern in that field which has opened for business with a new factory upon the south side of Orlando.

W. H. Langston is chairman of the board, with E. C. Langston as president. Both having long been prominent in the business life of Orlando. T. B. Gautier, Jr., vice-president, was formerly identified with another fertilizer concern in similar capacity, and will have charge of manufacture. Norman Tuckett, vice-president, is a horticulturist; and J. E. Nobles, secretary and treasurer has formerly served in similar office capacities in the fertilizer business.

A new, and adequate plant is now in course of construction, and is expected to be in production before long.

THE GROWERS' OWN PAGE

This department is devoted to the growers, for their use in giving expression to their views and a discussion of growers' problems. Any grower is welcome to make use of this department for the discussion of topics of interest. The only requirements are that the articles must be on some subject of general interest, must be reasonably short and must be free from personalities. The editor assumes no responsibility for views expressed, nor does publication imply endorsement of the conclusions presented.

WHAT OF THE POOR GROWER IN 1932

Is growing fruit a business? Too many growers, too many packing houses, too many fertilizer companies, too many marketing organizations, still think it only a sentiment. As a result the grower and grove owner is paying a heavy total in marketing charges and receiving less and less for his fruit. Each charge is assessed for his (the growers) special benefit and protection.

Here is what is happening and is exactly the reverse of what should be true. Consider packing house methods. Process after process has been added to the packing set-up until the cost has mounted out of all reason. Here is a list of what the poor fruit endures from the tree to the freight car or truck.

1. It is picked from the tree by a picker, a ladder and a pair of fruit clippers.
2. Deposited in a field crate (never very carefully).
3. Field crates loaded on truck or wagon and hauled to packing house.
4. Field crates unloaded and stacked for packing.
5. The fruit often is precolored at this point. Coloring takes trucking into and out of a coloring room where the fruit is held for as high as 72 hours. Pre-coloring brings out the yellow in the fruit.
6. After arrival at the packing house the fruit is dumped into a soaking tank and actual packing processes have begun.
7. Fruit is lifted from soak tank and dumped into a brush washer.
8. If a disinfecting wash is used the fruit drops from the washer into a pre-heated disinfecting solution.
9. From this hot water tank the fruit is again run through a washer and dumped on a conveyor going to a drier.
10. Fruit passes through drier and emerges cleaned and scrubbed.
11. A waxer or polisher is next in line. One process sprays on hot wax, others brush on parafine from parafine blocks placed in contact with revolving brushes.
12. The polisher is intended to give a gloss to the fruit and uses from 8 to 10 feet of revolving brushes.
13. From the polisher the fruit is dumped on to a grading belt which may be a canvas belt or made up of rollers.
14. Hand grading is done on the grading belt.
15. Stamping of fruit is now done in all up to date houses so from the grading belt to the stamping machine is the next step.
16. From the stamping machine the fruit rolls into a sizer and is dropped into bins according to standard sizes such as 150, 176, 200, 216, etc.
17. From the bins it is hand packed into boxes or baskets after being hand wrapped.
18. From this point a chain conveyor takes the box to a box press.
19. The box press squeezes the fruit down into the box until the lid fits tightly at each end. The box is then nailed and strapped, and more fruit mashed.
20. Ready for loading the fruit is usually hand stacked, hand trucked to the car and again hand stacked and nailed into place in the car with car strips so it will ride to market.
21. This may end the process unless pre-cooling is done, which job takes a complete refrigerating plant and another day of time before the fruit rolls.
22. This seems to be enough to satisfy the most critical, but such is not the case. Early in the season we cannot trust ourselves to ship ripe fruit so we tax each box for a maturity test. This is State control and is handled by the State Agricultural Department.

Cost, yes, but the grower pays the bill and from someone's standpoint every process is necessary. Getting the fruit off the tree and into a box is quite a job. This last three years the grower has been treated to a wonderful spectacle of passing his tax money along. Money to be paid into the government treasury has been partly returned to him in building many wonderful packing houses. There are more big, fine packing houses in the State than ever before and they have been largely financed from tax money which, of course, is to be repaid from earnings on operation. Fortunately, oranges will be able to repay a bit of this cost this year, but how about several millions of boxes of grapefruit and tangerines? The grower will hardly notice any tax reduction in his annual tax bill, but he may notice a necessary increase in his packing house assessments to cover cost of new construction. Either way, he will pay the bill and probably never be the actual owner, but he may have a few equity rights to cherish. A few of us growers are fortunate in not having new houses or costly extensions to worry about. In nearly every case the old houses could put fruit out just as uninjured and just as cheap as the new ones can, but money was in sight and the opportunity must be embraced.

Possibly all of the handling charges from tree to consumer are fundamentally sound, but are they all necessary? Some of the best selling fruit in the State does not go through so many processes so all of them cannot be considered absolutely necessary. If these costs (packing costs) total 60 cents or more the amount may equal the net, or even exceed, the net amount actually returned to the poor grower. Very few houses at the present time show any marked desire to reduce packing costs.

Everybody blames poor marketing for low citrus income. It makes little difference as to what other factors may affect fruit costs, marketing is always to blame, apparently, because such savings as may be effected are rarely large and because a sales record always hits a man squarely between the eyes. There is no getting away from the fact that a fruit sales record is the most looked for item and the most apparent measure of our success or failure as a grower. Other cost items are rarely inquired into closely, but the sales record gives us something to grouch about and no mistake.

So far this season the average sales of both grapefruit and tangerines have been very disappointing, yet some crops of both these fruits have sold at profit. Is marketing at fault? The marketing organizations disclaim any such responsibility and point to other conditions. In fact, anything else is to be blamed rather than marketing. Marketing also has

come in for its share of inflation the same as packing charges. We have too many organizations and too much cost within those organizations. Advertising is too high for the results we get out of it, yet the grower is asked continually to support more and more moves to control marketing. Just why he should is getting darned hard for him to figure out.

A new method of transportation has developed up to amazing volume this last two years. Trucks have opened up thousands of wayside communities and placed them within reach of the citrus grower. We get a profit on fruit we paid out good money to produce, they get fruit that is good to eat at a figure they can afford to pay. But, will we be allowed this all important outlet? We will not if it can be regulated and legislated out of existence. It will be hampered by the railroads if possible. It will be regulated by the Interstate Commerce Commission. Marketing organizations will be against this inroad on their private preserve (packing profit). Yet none of the objectors can give us by any other means the same widespread market at anything like the same cost. In the final end the grower himself will have to truck his own fruit to market unless his own State legislature and his own State marketing organizations will see that trucking is made a permanent part of our distribution system and that without undue and expensive restrictions.

Trucking gave us something that Florida has been fighting for these many years—lower freight rates. In time we will actually be on a parity with other sections, but until actual loss of business forced the issue we have continued to pay exorbitant handling charges. Trucking and water shipments forced the issue. With suitable encouragement Florida can produce fruit enough to supply all three of these methods of transportation with tonnage but we must have this lower transportation cost and we must have every method available at its lowest cost or groves will not continue to be a good investment.

Grove costs or, stated in another way, the cost of producing a box of fruit, is about the only item that has varied only slightly up to our present period of grove history. The future, however, offers some possibilities in savings of grove expense. Past experience running over fifty years of time has shown up the relative relationship between plant food materials and good fruit production whether applied as mixture of materials or if the materials were used separately. In either set-up good quality and quantity of fruit could be obtained, if intelligently used. The success attendant on the use of any material or mixture depends now, as in the past, on the degree of knowledge the user has available to govern its selection. Production troubles can be had very easily with any and all mixtures or materials. However, we have now a much wider range of materials to select from and an increased knowledge of their effects. Savings amounting to ¼ or more of the cost of past fertilizing methods can safely be made. In addition, even better quality and larger yearly quantity of fruit can be had along with the savings. This is the one point and place that the grower can exercise his own discretion, but even exercising discretion is not always easy.

The grower is encouraged to look after his grove in every way, to produce bright fruit. In fact, to do everything that will raise his grove costs so long as it is along the right line. Let us summarize the "growers' lament":

Packing: Almost endless expensive processes and excessive fruit handling. Rough handling, too long from tree to time of rolling to market.

Marketing: A ray of hope — we have lower freight rates but heavier loadings per car, 444 instead of 360. A knock on the head. Trucks are to be regulated off of our highways if possible. We lose thereby the only method of transportation that will permit us to reach economically thousands of small wayside markets. Water shipments are holding their own. We need more of it. Advertising is no worse than in the past. Office detail cost is no lower than in the past compared on a dollar purchasing power.

Grove costs: Taxes too high. Can save about ¼ of past fertilizing costs. Grove care expense can be cut to some extent.

Legislation: Too much regulation. What next?

C. D. Kime.

CENTRAL FLORIDA EXPOSITION

The premium list for the Central Florida Exposition to be held in Orlando February 23-27, 1932 is off the press and now available from the office in the Court House, Orlando.

Actitvities have begun and each day shows increased interest in the coming Exposition, judging from the innumerable inquiries and the many exhibitors who have been assigned space for displays.

Not only the counties which usually participate in this great event have signified their intention of having bigger and better displays than in former years, but there is a greater number of communities and individuals who will vie with each other on their displays in making the coming Exposition the greatest in central Florida history.

The Johnny J. Jones shows will fill the "Midway" with entertainment surpassing anything before offered, while the grand stand shows in charge of the inimitable Joe Lewis will capture the plaudits and praise of all who attend the Exposition.

The department of Game and Fresh Water Fish for Florida will have a fine display according to C. C. Woodward, State Game Commissioner who stated that the exhibit of fish and game will be under the supervision of Miss Partridge who usually handles these important displays.

A. D. Folweiler, Assistant State Forester, has advised the Exposition manager that the Florida Forest Service has scheduled a display during the week of the Exposition.

Ground space has been set aside for the display of the greatest variety of garden, farm and home machinery where daily demonstrations of practical value will be given.

The citrus industry will have large and unusual displays featuring some of the finest fruit grown anywhere, while the vegetable and farm products exhibited will satisfy the most skeptical that Florida can produce anything and everything that can grow in our climate.

The fine arts department will be filled with wonderful productions coming from the brushes of well known artists.

Handicraft and public school displays will exceed in quantity and quality any showing made at any one of the previous Expositions.

One of the big attractions at the Exposition which will attract devotees from all over the country is the poultry and rabbit section where rare specimens of birds and animals will be seen at their best.

Many novel and attractive amusement acts have been secured for the week and when you enter the Exposition gate you are sure to leave old man worry on the outside, for there will be no time for anything but wholesome entertainment both educational and inspirational.

According to Col. R. M. Shearer, President, nothing is being left undone to make the Central Florida Exposition February 23-27, 1932 the best and most satisfactory in every particular of any Exposition ever held in Orlando.

Watch For Leaks In the Citrus Marketing Machinery

By C. V. Noble, Agricultural Economist, Experiment Station

The 1931-32 Citrus Fruit Outlook Report, prepared by the U. S. Bureau of Agricultural Economics, opens with the following statement:

"The combined production of oranges and grapefruit has increased ten-fold during the last 40 years and has been increasing at an average rate of about 6 per cent per year during the last 10 years. The total number of trees in orange and grapefruit groves is now twice as large as it was in 1920."

The Federal Outlook Report also brings out the fact that citrus production in foreign countries is increasing rapidly, which, together with the tariffs imposed on citrus fruits by what have been our most important foreign markets seem destined to make our export citrus trade increasingly difficult.

This situation in our citrus industry would seem to lead to but one conclusion if the business is to prosper. There must be methods found and developed which will decrease the costs of producing and marketing the crop. The problem of decreasing the production costs is very important but it can be more readily worked out by the individual grower than the problem of decreasing the costs of marketing. It requires the united effort of producers and shippers to make headway in more efficient marketing.

It is the purpose here to bring out some of the methods by which Florida citrus producers are reducing or are in a position to reduce their marketing costs if they will make the united effort to do so.

A study was made of the cost of handling citrus fruits through approximately 100 citrus packing houses for the two seasons 1924-25 and 1925-26. This was a cross-section of cooperative and independent houses. (1) It was found that the average cost per box for handling citrus fruit from the tree to the car was $0.95 and $1.04 for the two seasons, respectively. This difference was due primarily to the smaller crop for the 1925-26 season. However, there was a very wide variation in the per box costs for individual packinghouses, the range being from $0.74 to $1.50. When these packing house businesses were analyzed, it was found that the principal factors causing the low costs of some houses were:

1. Adequate volume. At least 75,000 boxes of fruit per house seemed necessary for efficient operation.

2. Adequate volume per car capacity. It was not only necessary that the volume of fruit be large, but it was also essential that the investment overhead be reasonable. At least 15,000 boxes per season was necessary for best results per car capacity of the packing house.

3. Large volume per grower. If the fruit of each individual grower was kept separate until packed, it was found that at least 400 boxes per grower was necessary for keeping costs down to a reasonable figure. A large number of varieties of citrus also results in increased costs of handling.

4. Efficient arrangement of packing houses. Many of the handling costs, especially the floor labor costs, of packing fruit were greatly reduced by well arranged houses.

A study that is being made of the citrus cooperative associations in Florida further substantiates the importance of volume of business from the standpoint of capital invested. An average balance sheet for 61 citrus cooperative associations, at the end of the 1929-30 season, is shown in the last column of Table 1. These associations are also grouped in the first six columns of this table on the basis of the volume of net sales. The associations with more than $600,000 net sales averaged $873,331.62 per association, or approximately three times their total capital. Those with less than $50,000 net sales averaged $28,549.62 per association, or about 1.5 times their total capital. Furthermore, the net worth of the association decreases rapidly as the total assets and the total net sales decrease, and in the group with the smallest volume of business, the total liabilities exceed the total assets by approximately $3,283. (table 1).

Another matter which should be considered is the cost of transportation to market. In a study of transportation rates (2), it was found that the California producers have succeeded in obtaining a relatively more favorable rate system than is in effect for Florida citrus. This lack of uniformity in transportation costs penalizes the Florida producers. It is only through the united effort of all Florida citrus producers and shippers that these rates can be brought into equilibrium.

(1.) Hamilton, H. G. Cost of Handling Citrus Fruit from the tree to the car in Florida. Agri. Exp. Sta. Bul. 202:1929.

(2.) Brooker, Marvin A. A study of the Cost of Transportation of Florida Citrus Fruits with Comparative Costs from other Producing Areas. Fla. Agri. Exp. Sta. Bul. 217:1930.

Fruit Treating Process

We own the exclusive rights for the entire United States in the process of treating citrus fruit with a mixture of paraffin and gasoline or similar volatile solvent covered by

McDILL

United States Patent

No. 1,630,129

granted May 24, 1927.

To packers desiring to treat their fruit by this process we are prepared to grant the necessary permission on suitable terms. Applications will be considered in order of receipt.

Address all inquiries to

BROGDEN, RICKETTS & HAWORTH COMPANY

Box No. 338

Winter Haven, Florida

BLUE GOOSE NEWS

Monthly News of American Fruit Growers Inc. *Edited by The Growers Service Department*

BAGGS PARTICIPATES IN RAILROAD PARLEY

William H. Baggs, Pittsburgh, vice president and general manager of the American Fruit Growers Inc., together with R. B. Woolfolk, participated December 10 in the conference at Jacksonville called by executives of the southeastern railroads with Florida citrus shippers to discuss reduced emergency rates.

The reductions at that time offered by the railroads and accepted by the shippers participating in the conference probably will be in effect shortly. They are expected to be of mutual advantage to the rail carriers and to Florida citrus growers and shippers, diverting again to the railroads a portion of the large citrus tonnage which recently has been going forward from Florida by motor trucks, and affording worth while savings to growers and shippers against the citrus rates previously in effect by the railroads to a large part of the territory over which the Florida crop is distributed.

The reductions amount to from 15 to 20 cents per box in the territories affected. In the lower Southeast there is a reduction of 25 per cent; and to the larger eastern markets the rate reduction amounts to eighteen per cent. The rail lines insisted upon in-

(Continued on page 3)

MANY PRODUCE MEN AS FLORIDA'S GUESTS

The holding of the annual meeting of the National League of Commisison Merchants this year in Miami, January 12-15 is responsible for the presence in Florida of a large number of the biggest wholesalers of Florida fruits and vegetables at this time.

R. B. Woolfolk, C. N. Williams and other executives of the AFG organization are scheduled to participate in the Miami gathering, and later to aid in entertaining the visitors, many of whom will travel together over the producing sections of the state following adjournment of the meeting, while others will go upon visits to selected points for contact with their Florida shipping connections.

HARPER IN CHARGE OF VOLUSIA COUNTY

Following the recent retirement as active head of Volusia Growers Inc. of L. F. Chapman, DeLand, the president of that organization, to become assistant superintendent of the state prison farm at Raiford, N. H. Harper known for his success in the management of the New Smyrna Packing Co. at New Smyrna, has assumed charge of all owned and affiliated operations of the American Fruit Growers Inc. in Volusia county.

From headquarters at De Land Mr. Harper is capably directing operations. His acquaintance in Volusia county is large, and his long experience with AFG methods and practices particularly well equips him for his present task.

THE BLUE GOOSE IN PROGRESS DAY CELEBRATION

December 15 was celebrated as Progress Day by Seminole county under the auspices of the county chamber of commerce, and large crowds gathered at Sanford for the celebration.

The aim was to exhibit something of the county's resources, the progress of the recent past, and Seminole County's determination to be numbered in the front ranks of Florida counties in the progress of the immediate future. It was a big event, participated in by Governor Carlton and many other notables, and was most capably handled by Harry Papworth and Karl Lehmann, respectively president and secretary of the Seminole County Chamber of Commerce and the many committeemen of that organization assisting.

Elsewhere is pictured the float of the American Fruit Growers Inc., which participated in the parade that was one of the big events of the day. It was largely the creation of Alex Foster, of the Sanford celery organization of the American Fruit Growers Inc., who is pictured standing beside it.

MARKETS CLEAN UP BIG SUPPLIES OF CITRUS

By C. N. Williams, Salesmanager

Through December 30 Florida shipped this season 5,784 cars of oranges against 9,200 last season; 5,866 carloads of grapefruit against 7,188 last season; 1,201 cars of tangerines against 1,495 last season; and 3,567 mixed carloads as compared with 5,484 last season. This made Florida's total shipments, including boat shipments and bulk shipments by rail but not including the movement by motor truck, 16,418 carloads as against 23,367 cars for the same period last season. This is 6,949 less carloads of Florida citrus than a year ago. However, California's shipments from the beginning of their season November 1 amounted to 8,627 cars as compared with 8,692 a year ago, or practically the same amount of fruit.

Through December 30 Texas had shipped 1,741 cars of grapefruit as against 1,346 to the same date last season.

The season on all Florida citrus fruits was two to three weeks later than last year. This is indicated by the movement up to November 10 this season as compared to a year ago. To that date Florida had moved this year only 676 cars of oranges against 3,148 last season; 2,634 cars of grapefruit against 3,844 last season; and 342 mixed carloads this season compared with 1,031 last season. By this it can readily be seen that since that date the markets have consumed an amount of citrus fruit almost equal to that taken last year, and at much more satisfactory prices, except for grapefruit.

This season Florida grapefruit has not had the eating quality normal to the time of year; and the large carry-over of canned grapefruit selling at extremely low prices affected the fresh fruit market.

From now on, with an improved eating quality of the fresh fruit, I am firmly of the opinion that we are

(Continued on page 2)

Adv.

BLUE GOOSE
NEWS
OF INTEREST to the citrus growers of Florida, each month, contained in four pages of paid advertising from the
AMERICAN FRUIT GROWERS INC.
Florida Division
Sixth Floor, State Bank Bldg.
ORLANDO, FLORIDA

TANGERINE JUICE

From Fort Pierce, R. N. Koblegard comes forward with the suggestion that tangerine juice makes a delightful drink; that it is delicious in taste and has a very attractive color. He believes that if proper publicity can be secured, the use of tangerines for juice may be a material aid to tangerine growers. "Why not spread the news and educate the public to drinking fresh tangerine juice?" That is the question he asks.

Indeed, why not.

Only in the past couple of seasons have tangerines been priced to the public so as to permit thought of them being generally used for juice purposes; but now tangerines sell very reasonably in the popular stores. Perhaps the big obstacle is the habit of peeling all "kid glove oranges," just because they are so easily peeled.

Comparatively few, even tangerine growers, ever have tasted pure tangerine juice except in the usual process of eating tangerines; but it is really delicious, just as Mr. Koblegard says. Perhaps there is an undeveloped field in the use of tangerines for juice purposes. The idea certainly deserves investigation.

MARKETS CLEAN UP BIG SUPPLIES OF CITRUS

(Continued from page 1)

due for a much better demand, which naturally should produce a favorable reaction in the markets.

The Isle of Pines grapefruit is out of the way until next summer; and we do not believe there will be any serious competition from Porto Rico until late May or June.

Recent information from Texas is that due to the drouth their crop has been considerably shortened by droppage; and also that sizes are not improving. In other words, they still have to market a crop of grapefruit running principally to 80s and smaller.

We cannot do other than anticipate a very satisfactory market from this time forward for Florida oranges. Unquestionably the crop is much shorter than indicated by any estimate yet published, and considerably short of last season. Considering the quantity of oranges consumed since the tenth of November and the prices realized for them, as compared with the quantity consumed and the prices realized in the previous season, there is every reason to feel quite optimistic concerning the future orange market.

A surprising quantity of citrus fruit was consumed within a short period of time just before and during the holidays. Just prior to the Christmas demand the shipments from Florida, especially of oranges, far exceeded anyone's expectations. In the face of these heavy shipments the markets temporarily declined. At the same time the public consumed this large amount of fruit; and by the first of the year the markets were reporting no surplus supplies of oranges.

Florida at the beginning of this month was having the first favorable citrus weather of the season. This cool spell following general rains over the peninsular should favorably influence the quality and appearance of our fruit. This should bring about a better reception of that fruit in the markets because of its better eating and carrying capacity.

While Florida has a considerable quantity of tangerines yet to ship, an improvement in both the orange and grapefruit markets ought to allow an anticipation of a general improvement in the tangerine situation.

Adv.

MAINE AFG MAN PAYS VISIT TO FLORIDA

F. H. Humphrey of Washburn, Maine, in charge of potato operations there of the American Fruit Growers Inc. was a recent visitor to Florida, spending some time in the Orlando offices and in the Hastings potato district.

A considerable part of Hastings growers' supplies of seed potatoes have been furnished by the potato organization of the American Fruit Growers Inc.; and Mr. Humphrey is greatly interested in the progress of the Hastings district.

Accompanying him was H. C. Hetzel of Charleston, S. C., division manager of the Amerian Fruit Growers Inc. at that point. Mr. Hetzel found much to interest him in the cultural methods and handling of Florida's winter truck crops.

COLD PROTECTION IS INTERESTING POLK COUNTY

Probably because of the accounts of the experience of California citrus growers with cold weather earlier this season, Polk county growers recently have taken out frost insurance upon considerable acreage, according to Alex Warren, Jr., of the American Fruit Growers Inc., at Winter Haven.

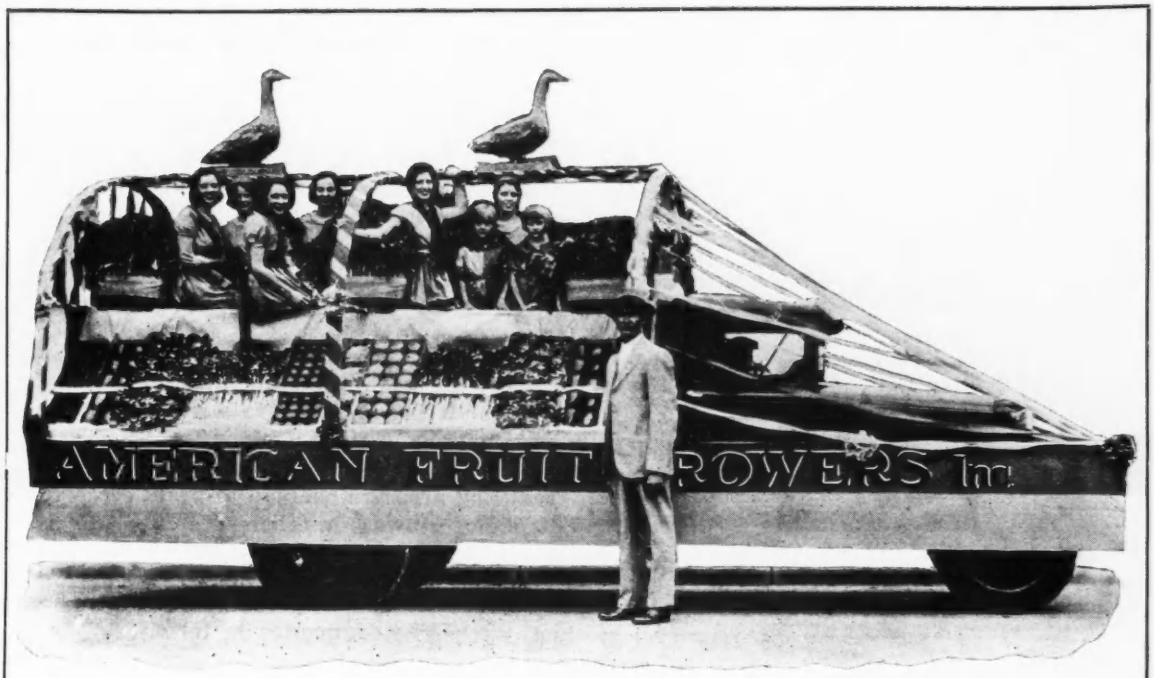
Several Polk county growers receiving news of the cold damage direct from friends in California are of the opinion that with California's shipments lower than had been anticipated the outlook for Polk county's exceptionally fine crop of Valencias is much improved.

As a result of this information Polk county growers are generally refusing the offers of cash buyers for their Valencias, even though those offers when first put forward seemed quite attractive.

TRUCK HAULING BIG FACTOR IN WEST ORANGE

Not only have motor trucks been taking their share of the citrus crop in West Orange county, but Don A. Field, manager of the Ocoee packing house of the American Fruit Growers Inc., reports that the movement of winter vegetable crops from this big producing area is going forward by trucks in unprecedented volume. An increasing number of the vegetable growers of that territory, he says, are moving their produce to northern markets by truck.

Trucks specially designed for such hauling are getting West Orange vegetables from the Winter Garden-Ocoee area into New York in about forty hours, and at a reported saving from former transportation charges.



Blue Goose Float in Progress Day Parade at Sanford Dec. 15

LARGO FRUIT OBTAINS TOP MARKET PRICES

The showing of Excellenta brand, the Blue Goose grade of fruit from the packing house of the American Fruit Growers Inc., at Walsingham adjacent to Largo, is gratifying to manager J. W. Parker of that house and all concerned in that it has continually topped other Pinellas county fruit in the markets this season.

The Pinellas county crop, according to Manager Parker, probably will not pick out in excess of 40 to 45 per cent of last season's yield, as a result of the drouth and other causes. With early varieties well thinned out and the volume of shipments undoubtedly due to be lighter, Pinellas growers are encouraged to believe their marketing outlook will be noticeably better from this time forward.

SEMINOLE FRUIT COMPANY TO SHIP THROUGH AFG

The Seminole Fruit Company at Fort Pierce, owners of large grove properties there, recently signed up to ship their fruit through the Fort Pierce packing house of the American Fruit Growers Inc.

For the past several years the company's fruit has been handled and sold by the American Fruit Growers Inc., with the exception of last season. Their return to the use of AFG service is an evidence of confidence and satisfaction.

The Seminole Fruit Company is among the largest citrus producers in the Fort Pierce section, and fruit from their properties is noted for its uniformly high quality.

BELIEVES HIGHLANDS CROP CUT 35 PER CENT

Failure of rains to continue when it was thought the drouth was broken has still further reduced the citrus yield in Highlands county, according to J. E. Powell, manager of the Avon Park packing house of the American Fruit Growers Inc.

He estimates droppage there as a result of the dry weather at something like thirty per cent of the crop, and believes the small sizes of the fruit remaining will reduce the estimated yield in packed boxes another ten per cent.

Growers there are looking toward better market conditions after the first of the year, and a generally better situation when the full shrinkage of the state's citrus crop becomes better appreciated.

The drouth has considerably stimulated interest in irrigation in that section; and irrigation installations are due to be made in consequence.

The 200 acre citrus grove of S. Y. Hartt & Son at Avon Park is now being equipped with a complete irrigating system.

BAGGS PARTICIPATES IN RAILROAD PARLEY

(Continued from page 1)

creased minimum loadings as a consideration for the reductions, to which the shippers present agreed.

Formerly a high freight traffic official of one of the country's largest railroads before leaving to become associated with Messrs. Crutchfield and Woolfolk many years ago, Mr. Baggs is by experience particularly well qualified in traffic matters

In addition to participating in the Jacksonville conference, Mr. Baggs later spent some time in the Orlando headquarters of the Florida Division of the American Fruit Growers Inc., and further traveled much over the peninsula on inspections of operations and properties before returning to Pittsburgh.

Adv.

Sharing Experience

Not the least of the advantages accruing to those growers whose products go to market through the organization of the American Fruit Growers Inc., is the manner in which the growers of one producing area are enabled to profit by the experience of growers in other areas.

Whether the problem occur in connection with freight rates, refrigeration, plant quarantines, grading, packaging, deliveries in terminal markets, or what, it is not likely to be wholly new.

Somewhere, at some time, something highly similar had to be worked out; and the experience then gained can be applied with profitable results.

Within the organization of the American Fruit Growers Inc., or in its great and widely spread family of growers, is a vast fund of information and experience; and operating methods permit of the interchange of information and a sharing of experience in a manner profitable to all.

That is why when some unusual proposal is made affecting fruits or vegetables the question often is asked: "What do the American Fruit Growers Inc., think of it?"

American Fruit Growers Inc.

Florida Division
Orlando, Florida

Adv.

Citrus Features South Florida Fair

Citrus, in colorful array and artistically arranged in unique designs, will again feature Florida's agricultural exposition, The South Florida Fair and Gasparilla Carnival, February 2 to 13.

More of the golden fruit than ever will be on display in the mammoth exhibition halls with particularly striking exhibits now being constructed by the American Fruit Growers Inc., of Orlando, and the Ulmer Packing Company of Largo. These enterprising packers have reserved nearly 2,000 square feet of space to give prominence to their brands for the edification of the thousands of northern tourists who visit this exposition annually. The famous Blue Goose design, first featured at the South Florida Fair last February, will be given more prominence than ever this year.

Five other mammoth citrus exhibits are now being designed by county agents for Manatee, Polk, Marion, Pinellas and Hillsborough counties, each of which will feature their exhibits with choice fruit from their most productive groves. For several years of competition between Polk and Marion for first honors has been nip and tuck and this year the rivalry between these two counties threaten to be the keenest in the history of the fair. Both these counties have experienced great citrus years and the fruit available for the exposition represents the last word in quality products, county agents advise fair officials.

Matching in quality if not in quantity, will be the dozens of individual displays, entered by growers who have been specializing in specific brands. More individual growers and markerters than ever before are listed in the competitions for this special classification.

Several thousands of dollars will be paid in premiums as citrus awards, together with the customary ribbon honors that designate the placements as determined by the judges.

While fresh citrus fruit will be the outstanding exhibition feature of the Fair, strong representation will be noted from related industries. This will be particularly true in the home demonstration departments where marvelous progress in fruit preservation will be amply demonstrated. Jells, jams and preserves will occupy important positions in each county display while another great array of these delicacies will be displayed in the women's building.

In harmony with the expansive plans to parade Florida's marvelous citrus resources before the half million visitors who annually attend the South Florida Fair, other departments of the exposition are being exploited on a comprehensive scale. Every product grown in Florida soil will be exhibited in the premium competitions for which $40,000 is offered as cash awards for prize winners. The flower show will again rank as one of Aerica's greatest floral expositions with every bloom known to Florida gardens displayed. Thursday, February 4 has been dedicated "Flower Day" when especially elaborate floral exhibits and decorations will be arranged by the Tampa Florist's Association, Garden Clubs, Municipal nurseries and individuals.

For the first time in the history of the Fair, Tampa Cigar Manufacturers will prepare a special exposition, occupying 35,000 square feet of space to demonstrate every phase of the industry. A complete factory, licensed by the government and assigned number 400, will be put in operation, together with a box manufacturing plant, packing shop and a huge display room showing all of the many varieties of cigars manufactured in Tampa factories.

For entertainment this year the South Florida Fair will feature grand opera each evening with two special performances to be presented on Sunday, February 7. The Cola-Santo Grand Opera Company of New York, featuring noted European and American operatic stars, together with an orchestration unit of 22 pieces, will present the concerts.

Supporting the operatic programs will be 45 vaudeville, circus and hippodrome attractions, together with a number of specialties and sensational attractions.

More than 100 gold, silver and bronze medals are to be awarded to the winners of the South Florida Fair inter-schloastic track meet to be held on Saturday, February 6, for students of senior and junior hogh schools, General Manager P. T. Strieder has announced.

Under the direction of Coach Willard Johnson of the Hillsboro High School, 12 competitive events are scheduled, including a 75 yard dash, half mile run, half mile relay, high jump, shot put, tug-o-war and bicycle race for junior high students and a 100 yard dash, mile run, half mile relay, high jump and broad jump for seniors.

CLEAN TREES & CLEAN FRUIT

...follows the use of ORTHO KLEENUP for citrus pest control. Has been widely used in Florida with great success. Very economical too. Write for full information.

CALIFORNIA SPRAY-CHEMICAL CORP.
61 W. Jefferson St.
Orlando, Florida

KLEENUP
a proven oil spray for citrus pests

ORTHO
SCIENTIFIC PEST CONTROL

CITRUS NURSERY NEWS

We have for sale several hundred thousand Orange and Grapefruit trees of staple varieties on sour orange roots. Caliper ½ to 3½ inches. Fine stock. Must be sold. Write to us for prices.

Lake Nursery Company
Leesburg, Florida

Science Conquers Orange Juice Preservation

(Continued from page 5)

humoring frozen orange juice in the manner it is accustomed to be humored.

In the effort to preserve orange juice in original liquid form very few things have been overlooked. It has been put up in red, white, blue, brown, black and green bottles. It has been put up cooked, partially cooked, heat-treated or Pasteurized, and uncooked. It has been put up in vacuum, where even the inmost thoughts of the containers, and perhaps of the inventors, have been extracted to prevent mixing with the juice. But extracting the air from the containers, and the inventors and promoters, didn't help.

It has been put into containers where after the air has been extracted gasses have been introduced under pressure; but the most liberal supply of assorted gasses, to which some promoters made generous personal contributions, couldn't make the refractory juice behave itself.

Everybody, from first class scientists to ministers of the gospel, has had a fling at it, but orange juice has refused to stay put.

From time to time there have been false alarms. Experimenters thought they had it; but they didn't. This has been productive of some funny situations, and some heartaches. This writer, however, has refused to credit such "discoveries," when made; and if a more or less intimate knowledge of the research effort over a number of years qualifies to pass judgment, this present discovery in high scientific quarter must not be confused for a moment with the half-tested theories and efforts which have been productive of these false alarms.

This time, in the writer's humble opinion, the real scientific answer has been found. This is said without prejudice, in as much as this writer had no knowledge of these latest experiments until after the desired results had been accomplished.

As a matter of fact, the solving of the citrus industry's orange juice problem is simply an incident in connection with the recent remarkable studies of light rays by the Basic Science Laboratory of the University of Cincinnati. The results of those studies mark one of the tremendous advances of science within the recent past. There is a whole story there in itself.

Benjamin Franklin sent up a kite with shocking results, but it remained for Thomas A. Edison and others later to evolve a thousand ways of harnessing electrical energy and putting it to work. Well, away back in 1666 Sir Isaac Newton discovered there were different kinds of light, as revealed by the spectrum. More than one hundred years ago Young and Fresnel, beginning where Newton left off, went so far as to settle definitely that light moved in waves. Others since then have separated, measured and classified the various light waves. The scientists electromagnetic spectrum today goes far beyond the spectrum of visible light. Below the red end of the spectrum of visible light lie the rays of the infrared that humans feel as heat, and the Hertzian rays come below the infrared; and still further below are the extremely long rays on which radio is transmitted. Above the blue end of the spectrum of visible light rays are those of the ultra-violet which are extremely short, further up lie the most minute X rays and still further up is the band of the shortest of all, the tremendously energetic and penetrating cosmic rays. Science having duly arranged and cataloged these light rays, Dr. Herman Schneider, George Sperti and a small corps of investigators in this Basic

A FREE BOOK EVERY GROWER AND SHIPPER SHOULD HAVE

CONTAINS complete information on ETHYLENE—the magic gas which hastens ripening of matured fruits. Learn how to profit with it. Ethylene increases profits, reduces loss, saves time. Write for your copy of "Ethylene for Coloring Matured Fruits and Vegetables" *today.*

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Fertilizer Costs Can Only Be Measured By Effect On Crops

The cost of fertilizer per ton may mean nothing at all, but the result of having used the fertilizer just suited to your requirements means everything.

That's why so many of our customers are those who have purchased their fertilizer requirements from us year after year.

They know that our field experts will advise them honestly and expertly as to the sort of fertilizer required to secure the best results for their particular grove.

They know that this company never sells anyone with the thought in mind that that single sale will conclude our relationship. With us the initial sale is simply the entering wedge to a long and pleasant relationship builded upon a mutual confidence and respect.

If you don't know us as well as you should we will both profit measureably by becoming better acquainted.

West Coast Fertilizer customers raise better fruit.

West Coast Fertilizer Co.
303 Zack Street Tampa, Florida

Science Labatory of the University of Cincinnati began about seven years ago the business of devising ways and means of putting these light rays to work to the benefit of mankind, in much the same manner that Edison and his associates years ago went about the business of applying electrical energy to performing certain desired tasks. Already the accomplishments of these investigators of light rays at the University of Cincinnati have obtained revolutionary results. The preserving of orange juice without loss of flavor or bouquet is just one small item among these accomplishments.

This Dr. Herman Schneider is a remarkable man. Long before he became president of the University of Cincinnati, when he was an engineer, he forwarded somewhat radical theories on technical educational methods. When he got his chance to apply them at the University of Cincinnati they worked out exceptionally well. Students there in technical and scientific lines alternate at intervals between the class rooms in which they imbibe theories and the shops of large manufacturing organizations where these theories are put into practice, and where through actual work and sweat the students acquire the viewpoint of practical men. That is why, aside from the achievements of the University's Basic Science Laboratory, the people of the U. S. A. are hearing increasingly of the University of Cincinnati.

It was another radical theory of Dr. Schneider's that the whole field of science is one and indivisible. It has been by breaking down the barriers between biology, chemistry, physics, mathematics, psychology and other branches of science, and putting workers in these together to work out discoveries and correllations impossible of separate solution, that the accomplishments of the Basic Science Laboratory he founded have been made possible.

George Sperti, director of the Basic Science Laboratory now, was practically its whole beginning. A bright engineering student with an unusual turn of mind, Dr. Schneider picked him to begin certain studies upon graduation about eight years ago. The Basic Science Laboratory has evolved itself from that beginning. Today there are some thirty workers engaged in the laboratory. Mere youngsters most folks would call them. But they are making scientific history. Harnessing light rays, while an outstanding achievement, is only one of numerous scientific and practical accomplishments of this group.

Just about the time Dr. Schneider and George Sperti were getting the Basic Science Laboratory under way in a basement workroom, a foremost foodstuffs chemist after several months experimenting with orange juice in a vain effort to preserve it without the loss of its desirable qualities, made a statement to a group of Floridians to the effect that the job was an impossible one "until something new is discovered in chemistry".

The reason lay in the refractory behavior of the enzymes. Now orange juice is fuller of enzymes than a flea is of hops, so to speak. Remove the enzymes and there is nothing of value left. We wish we knew how to define an enzyme; but seemingly you do not define an enzyme, you just take it for granted. Get out your big dictionary, and if you can get any satisfaction out of the definition given there, you are welcome. One writer says enzymes apparently are on the border between nonliving and living cell structures. Anyhow, while clearly different from the microorganisms of yeast molds, they are the productive cause of spoilage in orange juice, as distinguished from bacteria. The foregoing is a somewhat ambitious scientific statement from a decidedly non-scientific writer. If for any reason it fails to make sense, use your imagination.

Now at the University of Cincinnati as one of the first necessary steps they learned how to make filters which accurately separate any of the visible or non-visible light rays. Pick out a ray of almost any desired length, whether it be measured by the hundreds of meters or the millionth of an inch, and they can arrange either to filter it out of the whole electromagnetic spectrum, or to filter out all the other wave-lengths so that your selected ray alone comes through. It is the selection of particular rays through this perfected process of filtration which has made possible the remarkable results obtained by the Basic Science Laboratory.

Previous efforts at preserving orange juice were all directed toward attempts to handle the bacterial condition. The University of Cincinnati group discovered the important factor was the inactivation of the enzymes, and then they proceeded to work out a practical method of inactivation through the use of one particular, critical radiation.

In none of the work at Cincinnati do they use the full ultra-violet plus the visible spectrum. They discovered that things happen at critical points in the spectrum rather than generally over the spectrum. Having determined the critical wave which inactivates an enzyme, they screen out all others and thus obtain the desired results.

(Continued on page 24)

The Florida Orange Festival

To Be Held in Winter Haven, Fla.

January 26-27-28-29-30, 1932

Will again offer a wonderful exhibition of Oranges and Grapefruit and the many allied industries—a beautiful display of color, lights and golden fruit, arranged with full expression to the various educational and commercial features.

The program for the Festival includes the following events:

Tuesday, January 26—**SCHOOL DAY**—Devoted to the entertainment and education of students who will be admitted free.

Wednesday, January 27—**GOVERNOR'S DAY**—Reception to the Hon. Doyle E. Carlton, Governor of Florida, official inspection of exhibits, Washington bicentennial pageant and crowning of the Orange Festival Queen.

Thursday, January 28—**ALL-STATES AND TOURIST DAY**—Third annual gathering of Tourists and Tourist club members throughout Florida; Ohio-Virginia wedding at 8 p. m.

Friday, January 29—**GROWERS' DAY**—Fifth annual gathering of Florida citrus growers; special meetings morning and afternoon.

Saturday, January 30—**AMERICAN LEGION DAY**—Special concert by Winter Haven American Legion Auxiliary Fife and Drum corps.

IMPRESSIONS

(Continued from page 6)

dominance of bright oranges in California while Florida has only a minor percentage of brights?" Sure we can. The rust mite is unknown in California.

Here we are all snarled up in international finance. Great Britain in abandoning the gold standard has just about ruined our grapefruit exports to the British Isles for this season. By the time a Florida shipper gets a remittance in the depreciated pound sterling translated into dollars and cents he is apt to find he owes himself money.

William Edwards of Zellwood, president of the association of association presidents (that is not a linotype error) of the Florida Citrus Exchange believes canning grade grapefruit should bring the growers a minimum of forty cents per box; and he is out to put the idea over. If anyone can put it over, Billy Edwards can; and here is wishing him power. However, it has become evident that numerous canners are not interested in buying popularity, but are interested solely in buying grapefruit as cheaply as possible.

Up to the first of the year the movement of citrus fruits from Floride by truck was averaging just about the equivalent of fifty railroad freight carloads daily. Roughly that is something like $18,000 per day of revenue which was lost to the railroads.

It is our impression that this has been the most backward citrus season of which we have any memory. That is, all varieties have been slower in reaching real maturity than in any season we can recall. Maybe as the eating quality of our fruit is better from now on it may gain in popularity with consumers.

Jack Guthrie, et al, and Al's brother, are inviting us all to another Orange Festival, to be held at Winter Haven January 26—30. It promises to be a big show, with a big time for all. Certainly we will be there; and look forward to seeing you who read these lines. Not yet having heard from Joe Lyons as to which day or days of the five when he proposes to buy our lunch we are still holding our engagement book open. Our address remains the same, P. O. Box 11, Altamonte Springs.

And the South Florida Fair at Tampa (why don't others retire from the ring and allow it being called the Florida State Fair?) again will be the biggest event of the sort in the South, and one of the biggest of its kind in the whole U. S. A. It will function February 2—13. It is an institution of which every Floridian rightly may be proud, and is in itself a liberal education to those from outside the state who see it for the first time. This year's program is an ambitious one; and it will draw a large attendance. Write those dates on your cuff, now, while you remember.

And Jay Stull, the well known Winter Haven factor, is now a city commissioner of the Town of a Hundred Lakes, or is it An Hundred? Growers incurring fines for violation of the Winter Haven traffic ordinances during the time of the Orange Festival will be permitted to pay them off in grapefruit.

Frank King of Homestead, Frank King of Orlando, and Frank King of Kissimmee, three prominent bearers of the same name, and in no way related. Frank King of Homestead is one of the very well known Redlands citrus growers. Frank King of Orlando grows some citrus, but is best known as state senator from Orange county. Frank King of Kissimmee is the nationally famous cartoonist of the funny papers, and all he knows about citrus is what Harry Plano of Kissimmee has told him.

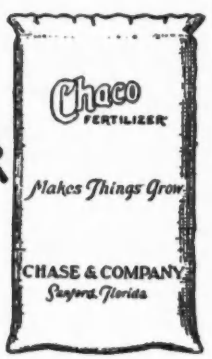
Funny coincidence in the preserving of orange juice being solved by the use of light rays. The first, or one of the first, attempts to commercialize the use of light rays was in Tampa, an inventor of German extraction bringing out a machine which passing radiations through cured tobacco killed the eggs of the cigarette beetle. The late Myron E. Gillett, and D. C. Gillett were the financial backers of the project.

GROWING HOME GARDENS

West Palm Beach, Fla.—Ninety-three home gardens were reported by Palm Beach county home demonstration and 4-H club members at their December meeting, says Mrs. Edith Y. Barrus, home demonstration agent. Sixty-one of the gardens belonged to 4-H club girls and 32 were reported by the women.

Chaco
FERTILIZER

Time MUST Tell



Now at less cost; but quality still the highest.

A PROMISING NEW GROVE IMPLEMENT

A recent addition to the list of modern grove equipment which promises to be of much interest to grove owners and caretakers, is the Peacock Cover Crop Cutter which has been given numerous demonstrations on groves in the Lakeland Highlands section of Polk county.

This implement, manufactured by Peacock Brothers of Lakeland, is the application of an old idea to present day needs of citrus groves by providing a speedy, economical method of handling cover crops in groves.

The necessity of providing humus to the soils in citrus groves through the growing of cover crops is almost universally recognized and generally practiced by grove owners. Cover crops, however, provide an ideal abiding place for destructive pumpkin bugs, and the heavier the cover crop, the greater the crop of pumpkin bugs.

Growers, therefore are compelled to cut the cover crop before the bugs migrate to the trees, and under the old process this has been a slow and laborious, not to say expensive, task. With the old-time mower and a team of mules, it has been possible to cut probably seven acres of cover crop per day, provided conditions were favorable. On a large grove, this has meant that many days must be consumed in the process, or that many mowers and many teams of mules must be employed.

With the new cover crop cutter and any standard make of tractor suitable to grove work, forty to forty-five acres may be cut (two eight-foot swaths between rows) in a single day, or eighty to ninety acres where a single swath is used.

The machine is drawn by any suitable grove tractor at the rate of six miles per hour, and its day's work equals that of six mowers and twelve mules, at no greater cost it is said.

The cover crop, whatever it may be, and all grass and weeds in the grove are cut into lengths of about six or seven inches and scattered loosely over the surface of the ground where it quickly decays and becomes incorporated with the soil. In addition to cutting the weeds and cover crop, the machine provides a shallow cultivation of the top soil.

The machine in appearance and general design is somewhat similar to the stalk cutters in use in Northern cornfields. It consists of an eight-foot cylinder provided with ten cutting knives equally distributed over the surface of the cylinder. The cylinder itself is sixteen inches in diameter, making the total diameter from cutting edge to cutting edge twenty-four inches. With a weight of approximately one ton, these cutting knives will cut anything grown in the form of a cover crop or any weeds which may find a place in the grove. Owing to its speed of operation, the cover crop may be permitted to grow until the danger of pumpkin bugs becomes imminent, when the machine may be put to work and a good sized grove thoroughly cleared of weeds in a single day.

The machine is attached to a tractor by means of a drawbar so constituted that it may be turned around in a very small circle without reducing speed, thus cutting close to the trees, and even underneath them, as fenders push the small limbs and fruit out of the way of the machine, permitting it to pass under the tree without injury to tree or fruit. The spring shackle in the drawbar makes the handling of the machine in making short turns almost unbelieveably easy. The end castings are provided with absolutely dust-proof roller bearings.

The first of these machines was given a test on the grove of John D. Pollock & Sons at Lakeland Highlands about September first, and a second machine is now at work in the groves of the Lakeland Highlands corporation nearby. Both machines have been inspected by many interested growers of the neighborhood. A representative of The Citrus Industry was present at one of these demonstrations.

HAND MADE CROTALARIA THRESHER WORKS WELL

Roy Taylor, of Bartow, who owns a fine citrus grove near Alturas, harvested a splendid crop of crotalaria this season and in order to thresh the seed had ordered a machine for the purpose. J. Will Davis, in the meantime suggested that he wanted the job of threshing the seed and volunteered to furnish his own equipment.

Mr. Davis made a machine, the chief parts of which were made from a discarded lawn mower roller and a piece of sheet metal punched full of holes. The motive power was a negro on the business end of a crank. And while the machinery appeared primitive the resultant harvest produced ont of the finest showing of seeds to be found and the harvest produced some 2500 pounds of seed which Mr. Taylor is advertising elsewhere in this issue.

YOU CAN DEPEND ON EMULSO

For eight years EMULSO has been Florida's Leading Spray for the control of White Fly and Scale. During that time dozens of products have come on the market, backed by extravagant claims, new processes of manufacture, highly refined oils and what not. But EMULSO, the same uniform product of nearly a decade ago, continues to give the same dependable results.

EMULSO CONCENTRATE

Emulso Concentrate is nothing more nor less than concentrated Emulso. We substituted Emulso Oils for part of the water in Emulso. It is a jelly instead of a liquid. You add the water when you use it.

OTHER NIAGARA PRODUCTS

These include KOLOSPRAYS AND KOLODUSTS, the Bentonite-Sulphur Insecticides: Hardie Sprayers: Niagara Dusters and all kinds of dust mixtures from the factories of one of the largest manufacturers of Agricultural Insecticides in the world.

For Catalog and Price List write to:

Niagara Sprayer & Chemical Co., Inc.

WHEN YOU BUY Niagara YOU BUY PROTECTION

JACKSONVILLE, FLORIDA

WAREHOUSES AT CONVENIENT POINTS

Science Conquers Orange Juice Preservation

(Continued from page 21)

Simple enough, isn't it? After you know how. Just find the particular ray which inactivates the enzymes in orange juice, then expose the orange juice to the radiations of that ray for an ascertained proper period of time, and there you have it. Yet a short time back as time goes men and women were burned at Salem and sundry other assorted places for less than that.

Well, they have done it. And it works. We have it on good authority that orange juice thus treated by this comparatively inexpensive process upon being removed from the bottles many months later, following exposure outdoors to hot sunshine and all sorts of weather conditions, possessed the flavor and bouquet of freshly expressed juice.

What the discovery promises to the orange producing industry of this country is, of course, a matter of conjecture. It is justifiable, however, to believe that so long sought a solution of an industry's problem is bound to be productive of more or less radical changes when the time comes that it can be put to practical, commercial use.

They are still continuing the experiments in the Basic Science Laboratory at the University of Cincinnati. It may be a year or more before they are ready to pass the process along as wholly perfected. Probably they also will be working out the mechanical problems incident to truly commercial production. Maybe the outcome will be a machine into one end of which the oranges go and out of the other end of which comes the orange juice, the essential oils and other components of the peel in some commercial form, and what have you. Perhaps, incidentally, they will evolve a machine capable of extracting the juice in large volumes yet free from the contaminating taste of any of the essential oils or other derivatives of the peel. That, in itself, will be quite a little order.

Commercial production, therefore, is not to be expected immediately. Yet when the proper time comes, commercial production seemingly is assured. For, in line with the policy of financing which has made possible the continued operation of this Basic Science Laboratory, the process has been patented, and the patents have been sold.

The patents are owned by the General Foods Corporation. That is the company which owns Maxwell House coffee, Minute tapioca, Towle's Log Cabin syrup, Baker's cocoa, etc. etc. That company has a subsidiary, General Developent Laboratories Inc. which has acquired these and other valuable patents covering the treatment of various foodstuffs by light rays, as developed by the research of the University of Cincinnati group. That is, in reality, the beginning. What ultimately will result from the research as thus far conducted, and how much further that research may proceed along these and other lines is a matter for interesting conjecture. The different kinds of light that Sir Isaac Newton discovered to exist are being put to work, to perform specific tasks under man's control. Preserving orange juice with its natural flavor and bouquet is, incidentally, the answer to but one of many previously existing scientific riddles which promise to be solved as the result of this research.

THE YEAR'S ADVANCES IN THE STUDY OF THE DISEASES OF CITRUS AND OTHER SUBTROPICAL FRUITS

By W. A. Whitney

New Banana and Citrus Disease in Florida. — The discovery of mushrooms at the base of citrus trees and banana plants lead to the finding of a new mushroom disease, according to Dr. Arthur S. Rhodes, pathologist of the Florida Agricultural Experiment Station. The disease, as it appears on either host, resembles that caused by the honey agaric, or oak-root fungus, in the manner of growth, the production of its fruiting bodies, and the preponderance on land where oak trees have stood. In a large number of attacked citrus trees examined, a good proportion of the lateral roots were invaded by the fungus and the tap root was usually found to be attacked and well rotted before the tops showed any signs of decay.

Citrus Scab known since 1840. — That the scab and canker diseases of citrus trees are not new things was revealed by Drs. Anna E. Jenkins, pathologist of the U. S. Department of Agriculture, and H. S. Fawcett, pathologist of the California Agricultural Experiment Station. Examinations of collections of plant diseases in various parts of the world reveal that scab has been found on material collected in Japan in 1862, in India in 1868, and somewhat later in China and Korea. What these scientists believe to be scab was found on a specimen dated 1840 and collected in Java. The canker of citrus trees is at least as old as the scab, the disease having been collected in Java as early as 1842 to 1844 and from the Philippines in 1903.

'Tis hard to part with those we love
When our hearts are full of hope
But 'tis harder to find a towel
When our eyes are full of soap.
—Carnegie Tech Puppet.

S'truth

I was struck by the beauty of her hand.

I tried to kiss her.

As I say, I was struck by the beauty of her hand.Stonecutters Journal.

"Black Leaf 40"

Widely recognized as a dependable control for Aphis and Thrips on Citrus Fruits. May be added to other standard spray materials and fungicides.

Kills APHIS and THRIPS

This "double acting" insecticide has been the favorite spray material of successful citrus growers for the past 20 years. It not only kills Aphis and Thrips by direct contact, but also by nicotine fumes. This is an advantage not possessed by any non-poisonous, non-volatile insecticide.

Recommended By Expreriment Stations

"Black Leaf 40" enjoys the endorsement and recommendation of leading growers, Agricultural Colleges and Experiment Stations and editorial writers throughout the country. Being highly concentrated, this reliable insecticide is economical to use as a little goes a long way. Full directions appear on every pacakge. Sold everywhere.

Tobacco By-Products & Chemical Corporation
LOUISVILLE Incorporated KENTUCKY

KILLS BY CONTACT AND FUMES

HIGHEST PRICES LOWEST COSTS with NACO Brands

Says Richard O. Compton, of Laurel Oaks Groves, Orlando, first prize winner in the NACO Letter Contest.

More convincing than any claims Nitrate Agencies could make for NACO Brand Fertilizers are the FACTS contained in Mr. Compton's $100 prizewinning letter. Read it carefully. And remember that Mr. Compton's grove is one of the finest in Florida so he must know what he's talking about when he praises NACO Brands . . . . . .

NACO applied to this 17-year old grove . . . . . .

Produced a heavy, high-pro[fit] crop in a low-price year . . .

At an immense saving in freight and application costs

NACO Brands are good for young groves, too . . . . . .

And NACO Service gets a word of appreciation . . . . .

INDIVIDUAL EXPRESS SHIPMENTS OF CITRUS FRUITS

LAUREL OAKS GROVES

ORLANDO, FLORIDA

Nitrate Agencies Company,
1401 Lynch Building,
Jacksonville, Florida.

December 5th. 1931.

Gentlemen:

Four years ago, we commenced to use "NACO" brands on our 18 acre grove, which is 17 years old. The grove is planted to Early Conner Seedless Oranges, Mc Carty grapefruit and Lue Gim Gong Oranges, all on sour root. The land is fairly rolling high pine.

Last year, the Conner Seedless oranges averaged 4 boxes per tree, cost 40¢ to grow, and sold for $1.15 "on the tree". The grapefruit averaged 7 boxes per tree, cost 21¢ to grow and sold for $1.00 in May. The Lue Gim Gongs averaged only 2½ boxes per tree, cost 63¢ to grow but sold for $2.35 on the tree, one of the highest prices paid in Orange County, in a season of discouragingly low prices. The Gainesville Experiment Station tabulated these production costs, obtained on land which carried taxes of nearly $11.00 per acre.

We use Peruvianite and NitraPo with "high pressue" formules. Before using "NACO" Brands, 60 to 75 pounds per tree, was the usual yearly application, but now, we use 25 to 30 pounds of Peruvianite, thus saving immensely in freight and application costs. Many dissatisfied growers after seeing our glossy green, healthy trees with fine crops became "NACO" users. NitraPo makes growth, yet carries potash. Peruvianite, with its base of guano, acts slowly but the NitraPo in it, produces the quick action so often desirable.

Our 1300 Hamlins, 6-8 feet high, not four years old, are many of them spreading 6 feet. They were fertilized every month with "NACO" Brand, Young Tree Grower. People comment on their size and vigor.

We like the service. The agent comes to advise with us, and not simply to obtain orders.

We do not cultivate, but mow our heavy cover crops and then disk in the fall.

Yours truly,

Richard O Compton

Richard O. Compton.

NITRATE AGENCIES COMPANY

1401-1407 LYNCH BUILDING

JACKSONVILLE - - FLORIDA

NACO BRAND

SIGNIFICANCE OF THE CANADIAN TARIFF ON ORANGES

(Continued from page 7)

to the very high prices for orange oil, however, Jamaica shipped 188,400 pounds of that product, which took an amount of oranges equal to 842,000 boxes to produce. The total production of oranges in 1919 including those consumed at home was somewhat over 1,000,000 boxes. These figures indicate that Jamaica is in a position to ship considerable quantities of oranges to the Canadian market. Mr. Squire reports that strong attempts are being made to develop a market in Canada for Jamaican oranges. The refrigerated freight rate on oranges amount to 75 cents per box from Kingston to Halifax or Montreal. This is equivalent to the duty. As was mentioned before, Jamaica can export oranges the year around but the months of heaviest movement would be from the last of September or the first of October to January or February.

In spite of the imposition of the Canadian tariff on United States oranges the American producers enjoys several advantages which the tariff cannot entirely neutralize. These are: The priximity of the United States to the Canadian markets which enables rapid delivery of the required sizes and grades to any part of Canada and in any amount; the high quality of the American oranges coupled with rapid delivery, whereas most foreign oranges must travel several weeks to reach Canada; a year around supply; well established channels of trade in Canada catering to consumers who are accustomed to high quality American oranges; and the fact that the Canadian market is reached by much advertising of United States oranges.

In writing advertisers please mention THE CITRUS INDUSTRY.

Spray cabbage with lead arsenate and soap for worms. The Florida Experiment Station recommends 1 pound of lead arsenate and 6 pounds of soap to 50 gallons.

Make a little bit of simple record keeping a part of every day's farm work.

CLASSIFIED Advertisments

The rate for advertisements of this nature is only five cents per word for each insertion. You may count the number of words you have, multiply it by five, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

MISCELLANEOUS

FOR SALE—Crotalaria seed, recleaned, Florida grown, germination tested. Striata @ 20c, Spectabilis @ 25c. F. O. B. Roy Taylor, Bartow, Fla.

ORANGE PACKERS ATTENTION — Two chemical transparent flexible orange coating processes for sale; royalty or license basis. Patent pending. Dr. C. V. Berry, 251 West 111th Street, New York City.

PUREBRED PULLETS FOR SALE—White Leghorns and Anconas ready to ship. Barred Rocks and R. I. Reds shortly. Several hundred yearling White Leghorn hens now laying 70%. Write or wire for prices. C. A. Norman, Dr. 1440, Knoxville, Tenn.

LAREDO SOY BEANS, considered free from nematode, excellent for hay and soil improvement. Write the Baldwin County Seed Growers Association, Loxley, Alabama, for prices.

WANTED—To hear from owner of land for sale. O. Hawley, Baldwin, Wis.

SATSUMA BUDWOOD from Bearing Trees. Hills Fruit Farm, Panama City, Fla.

WANTED—To hear from owner having good farm for sale. Cash price, particulars, John Black, Chippewa Falls, Wisconsin.

SEED—Rough lemon, sour orange, cleopatra. New crop from type true parent trees. Also thrifty seedlings. DeSoto Nurseries, DeSoto City, Florida.

DUSTER — Niagara, Air-Cooled engine Steel truck-mounted. Nearly new. Half price. Samuel Kidder, Monticello Fla.

SEEDS—ROUGH LEMON, SOUR ORANGE, CLEOPATRA. Pure, fresh, good germination. Also seedlings lineout size. De Soto Nurseries, DeSoto City, Fla.

FANCY ABAKKA pineapple plants. R. A. Saeger. Ankona, Florida.

HIGH BLOOD PRESSURE easily, inexpensively overcome, without drugs. Send address. Dr. J. B. Stokes, Mohawk, Fla.

CROTALARIA SPECTABILIS—Seed for sale. New crop, well cured, bright and clean. Price 25c per pound in 100 pound lots and over, 30c per pound in less quantities, f. o. b. Hastings, Bunnell, Lowell and San Antonio, Florida. F. M. LEONARD & COMPANY, Hastings, Florida.

SCENIC HIGHWAY NURSERIES has a large stock of early and late grapefruit and oranges. One, two and three year buds. This nursery has been operated since 1883 by G. H. Gibbons, Waverly, Fla.

RAISE PIGEONS—Profit and pleasure. Illustrated descriptive catalogue postage six cents. Vrana Farms, Box 314a, Clayton, Missouri.

C. D. Kime

Consulting Horticulturist

Grove Advisory Service, Soil Investigations, Research.

P. O. Box 222
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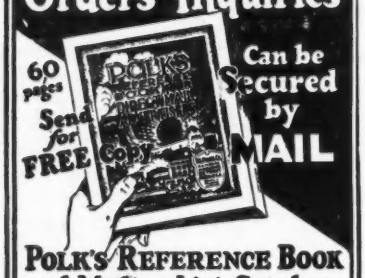

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Gives counts and prices on over 8,000 different lines of business. No matter what your business, in this book you will find the number of your prospective customers listed.
Valuable information is also given as to how you can use the mails to secure orders and inquiries for your products or services.

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Largest City Directory Publishers in the World
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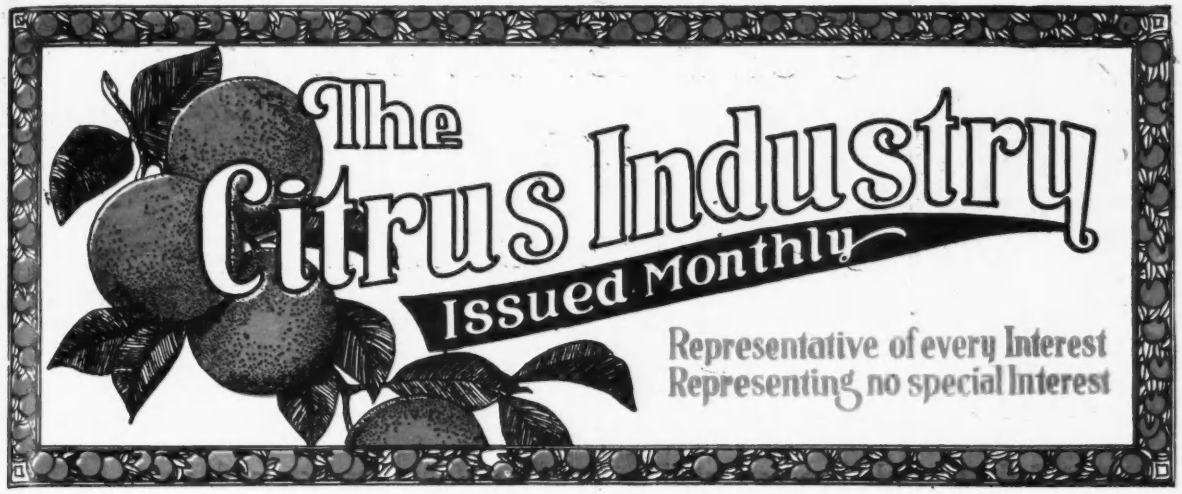

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The Citrus Industry

is

The Only Florida Publication Devoted

Exclusively to Citrus

Read This Issue and Every Issue

for Information and Profit

ASSOCIATED PUBLICATIONS CORPORATION, TAMPA, FLORIDA, PROPRIETORS OF:
THE CITRUS INDUSTRY - - - - THE FISH AND OYSTER REPORTER - - - - BARTOW PRINTING CO.

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GULF BRANDS are Standard Brands PLUS

Gulf Brands are everything good the Grower expects from Standard Brands—

PLUS

—Careful selection of materials for their plant food value.

PLUS

—An up-to-the-moment knowledge of their chemical reactions in mixing and in the soil.

PLUS

—The policy of combining the necessary materials for the purpose intended.

PLUS

—Carefully kept records of experiments in laboratory and field.

PLUS

—A willingness to urge you not to buy if your crops do not need the fertilizer.

PLUS

—A scientific and dependable field service.

PLUS

—A greater interest in YOUR results than in the sale alone.

IT IS THIS "PLUS" W H I C H MEANS REAL VALUE TO YOU

The GULF FERTILIZER COMPANY

TAMPA, FLORIDA

Warehouses: Winter Haven, Lake Wales, Bradenton, Winter Garden — Stocks at other convenient points throughout the state

Profits From The Citrus Orchard

Texas Citriculture

When is a citrus orchard profitable? Well, at exactly the same time that its operating costs are less than the gross returns, if your bookkeeping does not trip you up in the deal. And what are operating expenses? That depends upon who you are, and how you spend your money. Literally, your operating expenses are all those accounts that can be charged against the fruit crop. Not let's see how it works.

First, there is your initial capital investment. You expect to profit on this investment, your own money, and what else? Probably you will want to draw a liberal per cent of interest on your money, or pay the interest on your indebtedness. Well, as a matter of fact, you may be able to do so, but when you do you are dividing your profits and making them look bad.

Suppose your investment in an orchard were $20,000, and your indebtedness a mere $10,000. Would you expect your fruit crop to pay you 8% on your part, or on all? And then what else do you expect on your investment, additional profits? Maybe you will get them. Let's be reasonable about our expectations. If you own half of a citrus orchard, can you reasonably expect it to pay you interest on the whole? If you take your dividend in interest on your money, what other profits can you hope for?

If you were to invest your money in some manufacturing or jobbing business would you charge off 8% or 10% interest on your investment and then see if you had profits left? You would not. You would balance off your inventories, your cash, and good accounts, and see whether you have made the desired interest on your money, before you declared a dividend. And a dividend of 8% or 10% would be no small matter in any commercial enterprise, or, as for that matter, even an agricultural venture.

A safe rule to follow in determining whether your orchard is profitable to you is to first determine your actual running expenses including taxes, insurance, water service, pest control measures, tillage, labor and all other expenses of making the fruit crop.

Some accounts have been in question, for instance the matter of interest on borrowed money. Some prominent and successful growers settle the matter like this: if the borrowed money is used to make the crop, the interest is chargeable to running and operating expenses. If the money is part of the capital investment, interest is chargeable to capital investment, and not to overhead or operating expenses. It is claimed that this is the most accurate way of determining the capital investment and of keeping the expenses right.

Depreciation of machinery and tools, and replacements are chargeable to running expenses, while new equipment should be charged to capital investment. Aside from the regular labor charge, where the owner actually supervises the work done on his place, whether he actually does the labor himself or not, he is making a legitimate charge for his service of an amount not to exceed $25 per acre for management. This should be charged against the fruit crop along with other necessary expenses. Fertilizers and cover crops are planned to maintain fertility and to produce crops, and therefore, are not capital investments, but are also operating expenses.

About that unpaid balance—no, that sounds too much like bill collections,—concerning the indebtedness on your orchard, what part of that should the fruit crop take care of? Well, it would be fine if one crop would pay it all off, but chances are that it will not. Should it pay interest? Yes, to the person who is carrying the debts. If it does not pay, it makes it hard on you. If it more than pays, it is your good fortune.

(Conitnued on page 22.)

Chaco
FERTILIZER
Time MUST Tell

Insures you healthy, producing trees at least cost.

Consider this—

Florida Citrus Exchange Tampa

Compulsory Cooperation

In a logical and thought-compelling article in his Florida Farm and Grove, Frank R. Hammett takes strong ground for compulsory cooperation in Florida's agricultural prduction and marketing, with particular reference to the citrus industry. Mr Hammett declares that experience has demonstrated that there is no salvation for the industry under the present system of "limited cooperation and almost unlimited individualism." The only hope for the industry, he asserts, is in the adoption of a system of compulsory cooperation.

Today, according to Mr. Hammett, 22 countries have abandoned the idea of unrestricted competition and have adopted, in one form or another, applicable to the chief products of those countries, plans of compulsory, governmentally regulated cooperation. They have been forced to do this, he says, "by reason of dire necessity, in order to save their economic productive life." They have found the plan "the life and salvation of the producers." These countries are: Australia as a whole; Queensland, New South Wales, New Zealand; the Union of South Africa; the Dominion of Canada; Alberta, British Columbia, Saskatchewan; the British Empire; England; Switzerland, Roumania, Hungary, Jugoslavia, Poland, Bulgaria, Argentina, the United Kingdom, France, Germany, and Italy.

The products coming under the compulsory cooperation laws of these countries include wheat, dairy products, wool, meats, sugar, rice, honey, eggs, wine, tobacco, general grains, fruit, fresh, dried and canned.

"As certainly as the day follows the night, continues Mr. Hammett, "such laws must be enacted by the 48 states and the United States as a whole if the agricultural life of the country, upon which its very existence depends, is to be preserved."

In Florida, "limited cooperation and almost unlimited individualism—call it independence, if you please—have ruled the industry from its beginning. Individualists have stood on their God-given right to do what they pleased with their fruit, once it was grown; and too often they have exercised that right by underselling, by cutthroat competition, by refusal to cooperate in any way, regardless of the fact that year after year that plan has shoved them farther in debt, while 'independent' buyers and shippers patted them on the back for their refusal to work for the common good of all—and grew rich while they did the back-patting."

Mr Hammett continues:

We may deplore the fact if we will, but it remains a fact, nevertheless—compulsory cooperation as applied to the growing and selling of basic agricultural commodities and products in this country is closer than "just around" some hypothetical corner. The grape growers of South Africa know it has been their salvation. The wheat, fruit, wool and sugar producers of Australia know it has saved their industries. The dairy industry of New Zealand has seen and realized its benefits, as has the same industry in Switzerland. In our own country, wherever cooperation has really had a fair trial in any agricultural industry, even without compulsion, its benefits have been demonstrated; take for example the apple growers of the northwest, as an excellent illustration.

If Florida's great citrus growing industry, and the state's almost equally vast winter vegetable growing industry, are to continue to grow and expand, some means must be found that will keep the growers from cutting one another's throats. Competition, either voluntary or compulsory, but unrestricted in either case, has not done, and apparently never will do, that little thing; rather, conditions have steadily gone from bad to worse, in a veritable saturnalia of self-destruction and destruction of the entire industrial set-up. Twenty-two other countries have found in compulsory cooperation a remedy for conditions not so bad as those we are facing here at home. Will our disposition to follow foreign examples, no matter how good they may be, and our national distaste for anything that may seem to dethrone individualism in favor of sane cooperation, the substitution of "we" for "me"—just the change of one little letter, you see—be sufficient to keep us from adopting a system that has kept many industries similiar to our own, in other lands, from going on the rocks?

This article may well receive the close and thoughtful attention of Florida producers and public. We have seen the failure of repeated efforts to bring the citrus interests into complete cooperation, and the growers have, year after year, paid the costly penalty of that failure. Is it possible or practicable to adopt a compulsory plan in this state? Surely Mr. Hammett makes a strong argument for it. A discussion of his proposal, by those qualified to discuss it, would be interesting and illuminating